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ORIGINAL ARTICLES.

IMPORTANCE OF SURGICAL TREATMENT IN CHRONIC PURULENT OTITIS MEDIA.

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It is not to go into detail in regard to the surgical treatment of chronic purulent otitis media, but rather to urge the importance of recognizing the necessity of such treatment when it exists, and point out briefly the dangerous sequelæ which are sooner or later liable to arise, and when we take into consideration the comparative frequency of these sequelæ, the successful treatment of the condition becomes a matter of prime importance.

St. John Roosa[1] says: "The almost inevitable consequences of the suppuration of the middle ear are dangerous to life and health of patients, hence the importance of the subject and the interest which every physician should take in arresting the advance of the disease."

It is almost an every day occurrence for the aurist to come in contact with patients suffering from a chronic purulent discharge from the ear, which has continued months or years, who inform him that they have been told by physicians that they need no treatment further than the routine injection of antiseptic solutions, or the insufflation of some antiseptic powder; or, perhaps, they have been advised that they will "outgrow" the trouble. Such advice is, as a rule, misleading, inasmuch as it engenders a false feeling of security which should not exist where there is a persistent purulent discharge from the ear. These cases may be divided into two classes as regards effects of routine treatment: 1st. Those cases which respond readily. 2d. Those which respond indifferently or not at all. It is with this latter class that we are specially concerned.

In a majority of these cases a careful examination will reveal the fact that there exists more or less necrotic tissue, such as dead bone, granulations, etc., or polypi, exostoses, and other products of inflammation; and when the disease has involved the deeper structures there are accumulations of effete material, the result of long continued inflammation, which the ordinary measures will not reach, and our efforts will prove of no avail unless we provide for free drainage. We must recognize and carry out the fundamental principles of surgery here as elsewhere. In those cases of suppurative otitis lasting over several months, there is nearly always present a condition which calls for surgical interference, and such surgical interference should be unhesitatingly resorted to as the only rational method of treatment. Otologists have quite generally recognized these facts within recent

years, but if one can judge from the number of cases of persistent otitis media of years standing, still "making the rounds," it is reasonable to conclude that there is still too much timidity in this regard, especially on the part of the general practitioner.

These cases, with very few exceptions, may be permanently relieved by removing the offending necrotic elements, granulations, polypi or other products of the disease, and such other obstructions to free drainage as may exist. This can generally be accomplished through the external meatus, but occasionally it may be necessary to resect the parts posterior to the meatus or open up the mastoid cells, establishing drainage through the ear.

These proceedings are comparatively simple, and when done with proper precautions are reasonably free from danger. But the anatomical relations and structure of the parts must be borne in mind, as the walls of both the middle ear and mastoid cavities are naturally thin, and when weakened by disease one might, with the smallest amount of undue force, enter the lateral sinus, labyrinth or brain cavity. The hemorrhage as a rule is of little consequence. In operating on the middle ear there is some danger of wounding the facial nerve, as it passes through the Fallopian canal. I may state, in this connection, that I have recently seen a case of facial paralysis produced in this way, in the practice of Dr. Bach. It did not appear until twenty-four hours after the operation, but the doctor was of the opinion that it was due to irritation at the time of the operation and a consequent congestion. The paralysis in this case responded readily to treatment by electricity, and was entirely gone in a few weeks. The results, however, are not always so favorable as this. Victor Horsley, Keen and others, state that the proximity of the nerve may be ascertained by the twitching of the facial muscles when an instrument comes in contact with its trunk. But I think the safer method is to locate the Fallopian canal and then control all hemorrhage so that it may be kept in view.

In cases of suppuration of the middle ear of long standing, the ossicles are frequently entirely destroyed, and after removal of remnants of the membrane, a thorough and careful use of the curette especially devised for this purpose, followed by appropriate after-treatment, is all that is necessary to affect a cure of the suppuration at least. The membrane should be thoroughly removed; not merely incised, but excised close to its attachment, especially at the lower part, so as to prevent lodgment of accumulations behind the membrane, and thus obstruct drainage.

Excision of ossicles. When there is only partial caries and ankylosis of ossicles it may be necessary to excise them. I will not go into detail in regard to this operation, but suffice it to say that it is by no means an easy matter. General anesthesia is not always necessary and many operators use a strong solution of cocaine instead, with success. The published reports of excision of the ossicles are decidedly favorable and where other methods are insufficient, it offers very encouraging hope. In regard to results, Burnett[2] formulates the following conclusions:

1. "This operation has not failed to stop suppuration in all cases of purulent otitis media in which the author has applied it.

2. "In 'attic' cases with normal atrium, the sole perforation being in the membrana flaccida, this operation is the only means of cure.

3. "By this operation, in cases in which the sole perforation is in the membrana tensa and is comparatively small, and while the purulency is limited to the anterior part of the drum cavity, the suppuration is checked before it reaches the drum cavity and mastoid disease, sinus thrombosis, and cerebral abscess are prevented.

4. "If any hearing exists before the operation it invariably improves after the operation.

5. "Vertigo, headache, tinnitus, and the ordinary attacks of acute inflammation, so common in chronic otorrhœa are entirely removed by the excision of the necrotic remnants of the membrana, malleus and incus."

Milligan[3] lately reported fifteen cases operated, with eleven cures; two improved and two still under treatment. Of the thirteen cases discharged, hearing was improved in eight, same in three, and worse in two. Milligan concludes that

in suppurative otitis with perforation of the membrane and caries of ossicles, local treatment has failed. That by excision of the ossicles all the symptoms are usually benefited and rarely made worse.

In the discussion of the paper the general opinion seemed to be in line with the ideas expressed by Milligan.

Many other operators, both here and abroad, report cases with a percentage of cures of the suppuration ranging from 75 to 85 per cent., with marked relief of the other symptoms and a decided increase in the power of hearing as a rule.

Before taking up the consideration of sequelæ, I might mention briefly the operation for the relief of this condition first suggested by Stacke,[4] of Erfurt, in 1890. He claims that the operation is particularly indicated where there is disease of the attic, and that, as a rule, the temporal antrum is involved in these cases.

Stacke makes an incision down to the bone, following the insertion of the auricle, excises the posterior wall of the meatus and clinches through the mastoid until the antrum is reached. He then removes the remains of the ossicles, membrane, whatever *débris* there may be present, making the attic and lower part of tympanum to form one cavity, and securing a free opening between the meatus and antrum, which is covered by a flap of skin and periosteum from the meatus. This is a difficult and formidable operation—practically a mastoid operation—and it does not seem to be justifiable or necessary in uncomplicated cases. The statistics of the operation as regards cure of suppuration and increase of hearing, certainly do not bear out the claims made for it.

Sequelæ.—Among the most common consequences of middle ear disease are accumulations of masses of *débris* consisting of degenerated epithelium, fatty matter, etc., the so-called *cholesteatoma*, or pearly tumor. Virchow[5] says that nearly one-third of all fatal cases are due to these accumulations. On examination of an ear containing cholesteatoma, a yellow, hard mass will be seen, probably quite filling the middle ear, the odor is very offensive and the ear exceedingly painful. These masses can generally be softened up and removed by syringing, if they are situated where they can be reached by such measures. But if located deep in the middle ear, or impacted in the mastoid cells it is, of course, necessary to resort to surgical interference, either the use of the curette or opening of the mastoid. Cholesteatoma are very liable to recur.

Exostoses, excepting congenital, are with few exceptions due to middle ear suppuration. They can generally be removed with the curette, but occasionally are dense and require the use of the chisel, or the dental engine and burr, as first suggested by Mathewson.

Mastoid disease, periostitis and caries with pus formation more frequently results from purulent otitis media than from any other cause. In a summary of fifty-nine cases reported by Roosa,[6] twenty-five were due to this trouble. The statistics of various authors I have at hand, place the proportion of mastoid cases due to ear disease at from one-third to one-half, and when we take into consideration the close relationship of the middle ear and mastoid, it is easy to understand how extension of inflammation from one to the other takes place.

It is not always an easy matter to differentiate between periostitis and caries of the mastoid, as frequently the symptoms are very similar. Frequently however, in suppuration of mastoid, the ordinary symptoms of periostitis-redness, swelling, etc., are absent, and excessive pain in the ear, with perhaps a decrease in the discharge, and rise of temperature are the only indications. Where these symptoms exist, no time should be lost in applying surgical treatment.

Necrosis of temporal bone, more or less extensive, not infrequently occurs as a consequence of this disease, and there are a number of cases on record where nearly all of the bony structures of the internal ear have become carious and been extracted as sequestra during the life of the patients. This is one of the most fatal complications and the symptoms vary widely, according to the parts involved. The canal in which runs the facial nerve may be included in the necrosis, or there may be engorgement of the nerve during the acute exacerbation and facial paralysis complicate the condition. The prognosis of the paralysis, however, is generally good. The treatment in addition to the application of general principles must necessarily be largely expectant, removing the sequestrum when it is possible.

Meningitis is a comparatively frequent and very fatal complication, especially in young children. It is, as a rule, secondary to other complications, such as cerebral and mastoid abscess, etc. Meningitis may be produced by entrance of morbid material into the circulation or by extension of inflammation from the bone to the dura and meninges. The symptoms do not differ materially from those of meningitis due to other causes. It seems to be the general opinion that surgical treatment is of little use in these cases. Pitt, quoted by Burnett,[7] says a fatal termination will be more frequently prevented "when it is recognized that it is desirable to operate sooner than we have hitherto done in those cases of ear disease in which there are severe local symptoms."

Cerebral abscess, extradural, subdural, and abscess of brain substance proper, more frequently result from middle-ear suppuration than from any other cause. According to good authority fifty per cent. of all cases arise in this way. It is not necessaay for caries of bone to exist in order that abscess may be developed. The purulency may involve the internal ear and, by extension along the membranes, cause a septic inflammation and result in the formation of abscess. The symptoms of abscess generally follow cessation of the discharge, and are severe headache, either general or local, due to pressure, slowness of pulse and respiration, vomiting, sluggishness of the mental faculties and other symptoms according to the location of the abscess. There is generally a rise of temperature, but if the abscess be extradural or subdural, it is frequently normal or subnormal. As the greater number of abscesses from ear disease are situated in the tempero-sphenoidal lobe, symptoms of pressure in this region, such as motor aphasia and paralysis of the face and extremities, will frequently appear. Owing largely to recent advances in the matter of cerebral localization, the indications for surgical interference are now clearer and while the results are not all that could be desired, they are very encouraging.

Thrombosis of the lateral sinus and phlebitis are occasionally met with and often give rise by metastasis to septic pleurisy or abscess of the lung. The symptoms of thrombosis are rigor, pyrexia, tenderness behind the mastoid, pain in the occiput and neck, and if the clot has extended along the jugular vein there will probably be tendernsss and inflammatory thickening in the region of the vein and carotid artery. The discharge from the ear will have ceased in the majority of cases. This condition was formerly considered to be an extremely fatal complication. But within the past few years it has been more frequently recognized as it occurred, and the results of ligating the internal jugular, as first suggested by Zanfel, in 1889, have been satisfactory. The best statistics I have been able to find are those of Lane.[8] He lays open the sinus, ligates the jugular below any thrombus encountered, and irrigates the septic surfaces. Lane[8] reports ten cases with nine recoveries. In a series of thirty-two cases gathered from various sources by Keen,[9] nineteen recovered and thirteen died after this operation. And Dr. Macewan in his recent textbook, mentions twenty cases operated, with sixteen recoveries. Thus it will be seen that the results of operation in this condition are decidedly favorable.

Malignant sarcoma, carcinoma and tuberculosis are said to be among the rarer complications of purulent otitis media.

I present this paper with the hope that it will serve to impress more firmly the necessity for surgical procedure in chronic suppuration of the middle ear. In regard to temporizing with this condition Keen has to say: "A case may go on for fifteen or twenty years, but the day of reckoning may at last come. and when it does come, it comes like a whirlwind."

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Chrysarobin Pencil.

Leistikow:

Chrysarobin	gm 30
Rosin	gm 5
Yellow wax	gm 35
Olive oil	gm 30

S. In alopecia rub the above into the hairy scalp at night. The irritation may be met with zinc ointment.

—*Nouveaux Remedies.*

INTESTINAL OBSTRUCTION; DOUBLE HAIR LIP; GASTROSTOMY TUBE; HEPATIC ABSCESS.*

ROSWELL PARK, A.M., M.D., BUFFALO.

Friday night after dinner, a man aged forty-eight, was seized with severe, rather indefinite, abdominal pains which suggested appendix inflammation. Once or twice before he had similar attacks but not quite so severe. He had to go to bed on account of the pains. An injection was given, as there had been no action of the bowels, anodynes also, and the man grew no worse till Monday afternoon, when he had fæcal vomiting, and the same night he vomited half an ordinary chamberful of fæcal matter. Tuesday morning I saw him with the medical attendants. At that time he had not vomited since the night previous, his pulse was good and full. There was much rumbling and peristaltic action of the bowel as the result of large injections, but the bowels had not moved. I suggested a more powerful enema of a saturated solution of magnesium sulphate, and at the same time advised that if there was any return of the fæcal vomiting the patient should be brought to the hospital and operated on at once. At six o'clock that night I operated, making the opening in the middle line. While exploring the intestine, running my finger along its coils, all of a sudden something gave way before my finger on the right side of the abdomen and there was a gush of exceedingly foul pus. This ran everywhere and some of it must have escaped into the abdominal cavity. I had not expected pus, yet I had proceeded with the greatest caution, using barely enough force to rupture the most delicate peritoneal adhesion. The intestine was at once removed, coil by coil, until the patient was nearly eviscerated. Finally I found a place where there had been a nest of adhesions shutting off a cavity between several loops of bowel, and in this pocket foul-smelling pus had collected. After disinfecting this with a hydrogen peroxide solution, I came upon two loops of bowel, one above the other, and both behind the abscess. These had been doubled up so that nothing could pass through them. Without much difficulty, I separated the adhesions which bound the intestinal kinks, once more disinfected the whole abdominal cavity, washed it out thoroughly with hot water and put in a drainage-tube. I put back the bowels and closed the external incision down to the tube. This morning the man's pulse is good, his temperature is 102° F., his general condition is as favorable as I could expect. The chances are naturally against recovery, yet I have some hope the man will get well.

Of the causes of intestinal obstruction, intussusception and volvulus are the most common; adhesions either freshly formed or old peritoneal bands not uncommonly obstruct the intestine but this case is a rare one. I presume this trouble began with some mechanical obstruction, then there was a little damage to the peritoneal coat, just enough to cause some exudation. But exudate causes adhesions and adhesions more obstruction to the bowel, and more exudate, so that the sequence runs in a vicious circle. The exudate undoubtedly became infected with the colon bacillus.

The case is highly interesting pathologically, rare clinically, and demanding relief surgically.

DOUBLE HARE LIP

This is a little boy who, they say is five days old. It would be insufficient to diagnose his case as a hare-lip. You will note that there is a complete fissure of the lip, projecting into the maxillary bones. The lip is represented in the middle by what the Germans call a *philtrum*, which projects like the snout of some animal. It is not merely a loose tag of soft tissue which can be readily approximated to the lateral portions of the lip, but it is connected to cartilage with centers of ossification. In order to get it back in line with the rest of the lip, I shall remove a

*A clinical lecture at the Buffalo General Hospital.

V-shaped piece of cartilage. My opinion is that, on account of the shock, which is always relatively greater in infants than in adults, it will be better to finish the restoration of the lip at a second sitting. At that time, the margins of the double cleft in the lip will be freshened and the parts united by the aid of a hare-lip pin.

This condition is not a perversion of growth along unnatural lines, but is the persistence of a tripartite arrangement which is normal in early foetal life and which usually coalesces later.

GASTROSTOMY TUBE.

This patient is a girl upon when I performed gastrostomy some weeks ago, on account of occlusion of the pharynx from congenital syphilis. At the time, the operation was necessary to keep the girl from starving. Of late, however, the relief of the pharynx from irritation and the action of drugs have cleared up the granulations in the throat so that she has taken food through the œsophagus and the fistula has closed. It is not at all certain that she will long be able to nourish herself by the natural passage as it is even now difficult for her to do so and, we have had a tube constructed to facilitate feeding through the fistula. The canula is a silver tube with a shield which can be set at any point by a screw. A rubber tube with attached funnel can be slipped over the metal tube, and the nourishment can then be poured in. It is easy to reopen the fistula and you can see that the stomach contents appear at once in the opening.

HEPATIC ABSCESS.

Some time ago you saw a case of abscess of the liver, which was opened and drained. The man was sent to his home in Pennsylvania with a drainage tube in place. The opening, however, does not now permit as free drainage as is necessary and I purpose enlarging it to day. There have probably been formed wide adhesions between the surface of the liver and abdominal wall, so that there is now little danger of opening into the abdominal cavity. It will probably be necessary to resect one or two ribs to follow the sinus to the bottom, and this can be done with cutting forceps. When I was a medical student, resection of a rib was a very unusual, even serious operation; it is now considered a simple procedure. There is no trouble to be feared providing you have control of your instruments and can maintain asepsis. Ordinarily it is necessary to keep out of the pleural and the peritoneal cavities by following the bone closely. The periosteum is intimately connected with the serous membranes, and both together should be stripped from the rib by an instrument having the proper curve to prevent it slipping through the soft parts. It is simply a question of dexterity to keep such an instrument always in contact with the bone. The other bug-bear of rib resection was the intercostal artery, which runs in a grove in the under and inner aspect of the rib. But with aseptic methods, an artery running in a bony channel affords as much security as one could ask for. It is not necessary to ligate such a vessel, for one can easily plug the bony channel, or, in the case of a rib, all that is necessary is to crush the bone with strong-beaked forceps.

Typhoid Fever.

In the management of typhoid fever, Dr. Adolph Kœnig, of Pittsburg, Pa., has used with satisfaction, the following:

Guaiacol Glycerini Alcoholis	āā	fl ʒ ij. fl ʒ iv.

M. Sig.—Five drops in whiskey and water every two two hours.

—*Food.*

Treatment of Delirium Treamens.

In the *New York Med. Jour.* Bellamy concludes an article as follows:

1. Delirium was controlled with greater rapidity and safety by trional than by other hypnotics.

In the majority of cases a marked stimulant effect was observed, possibly on account of the methylic and ethylic elements which enter into the composition of the drug.

3. On account of the low temperature noted in all cases, trional must posess antipyretic properties, thereby simulating its allies of the phenol group.

4. It was always well borne by the stomach, and in one case was rapidly absorbed when administered per rectum.

5. No unpleasant after-effects were observed, and in all cases recovery was speedy, with the exception of two.

LEAD POISONING.*

PROFESSOR WANNEBROUCQ, LILLE, FRANCE.

Lead poisoning may take place under the various conditions, but it is most frequently of professional origin, at least in our portion of the country. Here, as you know, our white lead is prepared according to the Dutch method, and during the various processes of its manufacture much dust is produced which contains a great deal of the carbonate of this metal, and which, in the majority of cases, is the cause of the poisoning Absorption may take place in various ways, but more particularly by the digestive and respiratory tracts. Lead, when introduced into the system, acts especially upon the nervous system in its central as well as peripheric portions; but at the necropsies it is also found in other portions of the body and especially in the liver, the spleen and kidneys. It also has an action upon the blood by decreasing the number of red blood corpuscles even to one half, increasing those that remain in size and impoverishing the coloring matter.

Lead poisoning is observed, clinically, as various symptom complexes either isolated or associated, among which is most frequent that which, according to my ideas, is termed lead colic. This latter form is presented by two patients now under treatment in the hospital.

The first is that of a young man of twenty-nine years and a half, who is dirty, careless of his person, regardless of the least hygienic measures, addicted to alcohol and therefore particularly susceptible to the deleterious action of the metal. Scarcely fifteen days after his entering the workshop he experienced the first symptoms: lack of appetite, disgust of food, nausea, vomiting, constipation and general weakness, but it was only later when he noticed sharp pains in his abdomen that he decided to enter the hospital.

At the examination we found him pale, anemic, with a subicteric tinge of his conjunctivæ and skin. This peculiar color, which is especially noticed in lead poisoning, is not due to the coloring matter of the bile, bilirubine, for an analysis of the urine will not yield the characteristic reaction, but, on the contrary, it is the product of the destruction of the red blood corpuscles and the impregnation of the tissues by the hemoglobine and methemoglobine. His pulse is small and slow; if one take a sphygmographic tracing, one will remark that the ascending line is short and but little accentuated while the descending one is long and almost horizontal. His breath is foul, an other characteristic sign of this disease, due not only to a lack of proper care of teeth but also to exhalations of sulphuretted hydrogen from long retention of the feces in the intestines.

For several days he has suffered from violent abdominal pains, an actual colic, as he says. He has no appetite and vomits frequently. The vomited matter which is quite abundant, is composed of bile mixed with mucus. For the last eight days he has had no passage of the bowels and the different purgatives which he has taken while at the hospital, have been without effect. He has no fever; on the contrary, his temperature is slightly below normal.

These symptoms have directed us into the right path for a proper diagnosis, but if we continue our examination we shall find from the blue line along his gums and the nature of the pains, the characteristic signs of his disease. His teeth are covered with a thick coating of tartar and in this tartar near the gum we notice a small and blackish line, almost on the gums, and at the roots of the teeth. To be precise this line is not exactly black as it is but a slight and recent deposit of tartar, so that, seen by refraction, it has rather a violet color than a very pronounced dark. This line is not only situated upon the teeth but also upon the margin of the gum itself. Some writers have asserted that it was due to small and capillary emboli in the vascular loops of the edge of the gum, but I rather think that this theory is not tenable and that it is simply dependent upon the introduc-

*A clinical lecture delivered at the Hospital Saint-Sauveur, Lille, France. Translated from Le Nord Medical, December 15, 1894, by F. H. Pritchard, M.D.

tion of minute particles of lead into the tartar and the gum which is transformed into the black sulphate of lead by the action of the sulphohydrate of ammonia, which is formed in the mouth. This sulphate penetrates, little by little, into the mucous membrane and becomes fixed as a sort of tatooing, aided by the mechanical action of the lips upon the roots of the teeth. We have a support to this theory in the second patient, for if one lift his upper lip you will notice a sort of tatooed line on the mucous membrane of his lip which corresponds to the portion which lies against the roots of his upper teeth. Whatever be the proper explanation of this characteristic, the line is present in our first patient, and forms a sign of great value in diagnosing lead poisoning.

We find a second in the analysis of his pretended colics of which he complains. You will observe that these pains are not situated in the abdominal region in all its extent, but that in this patient they are limited to the region of the two recti. If one press upon them at any point, the patient will complain of violent pain, yet in the immediate vicinity of these muscles nothing of the kind is noticed. One may press the abdomen inwards in any other region without giving rise to the slightest pain; on the contrary, we may raise a fold of skin and pinch it and no painful reaction follows. Therefore, the subjacent portion of the abdominal wall is the seat of the pain and not the intestine, for, at the sides we may press upon them with considerable force without pain. The pain is, indeed, in the muscle itself, of which we have a striking demonstration. If one press firmly upon the upper insertions of these muscles, on the costoxiphoid ligament at the anterior portion of the fifth, sixth and seventh costal cartilages we will produce pain; the same reaction will follow pressure upon their pubic attachments and here posterior to them we find only the bladder. Let us proceed still farther, for the patient is not very fleshy and the experiment is easily carried out. If we pinch between the thumb and index finger the lower insertion of the rectus taking care not to depress the abdominal wall we notice that pain is provoked. Hence, this patient does not suffer from colic as he says, but from a myalgia of the recti. But this muscular pain is not always limited to these muscles for it may affect the obliqui as well as the transeversis, while those of the posterior portion of the wall are rarely involved. Occasionally it has been observed to extend to the chest muscles, but the muscles chiefly affected are those of the abdomen and secondly, the adductors of the thigh. Our patient has no disturbance of the urinary passages. He has no albumen in his urine, but the quantity of urea is considerably reduced in proportion.

Treatment should be first and foremost directed towards relief of the pain. This result is generally obtained by applying a narrow mustard plaster along the affected muscles when there is no cutaneous hyperesthesia. These sinapisms should not be left on long enough to produce either blisters or eschars. In case of cutaneous hyperesthesia we prefer local applications of tincture of iodine. Under the influence of this treatment the muscular pain rapidly disappears, and with it the vomiting; the abdomen which has been tense and hard becomes soft and normally distended, and if not too large a mass has formed in the rectal pouch the patient has a passage of the bowels, for the pain, the principal cause of the constipation, has vanished. If evacuation of the bowels does not follow I usually give a purgative. Our patient has been cured in a few days; the pain disappeared, the vomiting and constipation ceased and the processes of nutrition resumed their normal functions.

But I have said nothing with regard to treatment of the primary cause, and one must attempt to cause elimination of the lead accumulated in the tissues. The metal in the skin may be removed by two or three sulphur baths, followed the next morning by one of soap and water. That in the intestines may be precipitated by the use of sulphurous mineral waters. As to that which has been stored up in the different organs it is best removed by a progressive renovation of the histological elements and keeping the emunctories in working order, particuliarly the kidneys and liver. Here hygeine takes the place of remedies. The iodide of potash which is sometimes administered, would seem to me to have more a harmful than a beneficial influence, for on contact with lead it forms an insoluble sulphate.

Our second patient is also affected with lead poisoning. He is a young man,

twenty-nine years of age, who doubtless, after trying his hand at all the trades, has finally ended in a lead factory. He is an inveterate drinker, his breath is fetid, he has suffered from vomiting since his entrance into the hospital, complains of obstinate constipation for which several purgatives have been given in vain, he presents a pronounced blue line along the gums and suffers from pains not only in the recti muscles, but also in the obliqui and transversi. On the same day that he entered he had no exaggerated cutaneous sensibility, but since then the dermalgia has appeared. This patient also exhibits some of the signs of hysteria, as abolition of the pharyngeal reflex, plaques of anesthesia, tremor, but no narrowing of the visual field nor hyperesthesia of the spine.

We treated his dermalgia by local applications of tincture of iodine; it yielded quite rapidly, but the myalgia was slower to disappear. We were obliged to employ here not only a mustard plaster, but also hypodermics of chloroform. This latter procedure, which we use with success in obstinate cases, consists in injecting into the region of the painful muscles two hypodermic syringefuls of a mixture of equal parts of chloroform and oil of vaseline. Thanks to this measure the pains ceased and with them the obstinate constipation and the vomiting.

These various measures are not the only ones, for others have been praised. Briquet treated lead colic by faradization of the affected muscles. This is, however, too painful, for one must have a care to faradize the skin only and not the muscles, which are apt to be thrown into painful contractions. Injections of morphine are also used, but they have the serious inconvenience of increasing the constipation; belladona, antipyrine in doses of two, three, four and even six grams, have been administered, but they have the inconvenience of not always being tolerated while they have produced gastralgia and gastritis. Professsor Combemale has tried olive oil in large doses of a glass a day, but I doubt if this remedy in such doses would be well borne by the greater number of lead patients, who are so prone not to bear even the mildest beverages. We therefore hold to the tincture of iodine for the dermalgia, to sinapisms for myalgia and sulphurous baths and drinking of sulphurous waters to eliminate the metal. These measures have rarely failed us in the hundreds of lead patients whom we have treated in this manner.

Diabetes Mellitus.

Solis Cohen uses codein in certain cases of this disease in gra. ually increasing doses up to 12 grains or more daily:

Codein phosphate	gr ii
Alcohol	3iv
Dilute phosphoric acid	3ii
Glycerin	3vi
Solution of hydrogen dioxide (10 volume) to make	3iii

Dose: two teaspoonfuls in 3 ounces of water.

—*College and Clinical Record.*

The Blessedness of Beards.

It is to be feared that too many men deprive themselves of what Shakespeare calls, "Valour's Excrement," without counting the possible cost. Whether the beard be an ornament to the masculine countenance we must leave the ladies to decide. It certainly has its uses in hiding a weak chin, and in some cases it seems to be cultivated as a vicarious compensation for a hairless scalp. It is not, however, in its cosmetic so much as in its hygienic aspects, that the blessedness of the beard—in which term we include the whole of the harvest usually claimed by the razor—is most apparent. That it is a safeguard to the throat is generally admitted, and writers of authority have insisted on its value as a protection against toothache and facial neuralgia. This is a goodly sum of advantages to the credit of the beard. Dr. Chabbert, of Toulouse, has, however, yet more to say in its favor. According to this practitioner, the beard seems to be a very efficient defense against that form of facial paralysis, which is caused by cold. This affection is far more common in women than in men, though the latter are, of course, more exposed to the cause that produces it. Professor Andri, of Toulouse, has seen several cases of this affection in women, but not one in man—he has heard of one, indeed, which would appear to be an excellent example of the exception which proves the rule, for the patient was a "lyric artist" with the faccia di musico, so distasteful to Lord Byron. Professor Pitres, of Bordeaux, has seen twelve cases in women and only two in men.—*British Medical Journal.*

COMMUNICATIONS.

RHACHITIC DEFORMITIES—ETIOLOGY, CLINICAL HISTORY, AND LESIONS.*

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Our subject is the etiology and the lesions of rhachitic deformities. By way of introduction I would say that rhachitic deformities are something new in our country. You have seen so many of them that undoubtedly the younger men here do not remember the time when there were no rhachitic deformities amongst us. Thirty years ago there was no rhachitis, except very rarely a stray mild case. At that time, when I spoke of rhachitis and endeavored to demonstrate a case in my clinic, I had to hunt considerably for material to illustrate this condition. When, twenty-two years ago, I wrote a paper on the first cases of craniotabes I had seen in New York, it was, with the exception of one, by Parry, of Philadelphia, the first paper on this subject ever written in our country. The subject of rhachitis, therefore, is a comparatively novel one. Since that time immigration has been going on, and the poverty-strcken people from the slums of Europe have been accumulating here. As with the greater facilities for transportation science has been equalized all over the globe, so poverty, bad air, and want of every description have equally spread constitutional diseases here. Since then we have seen much rhachitis here. Thus it is that the treatment of rhachitis in the future, although it will always remain medical, will also be a social question.

The principal causes of rhachitic deformity are numerous—the rapid growth, the thick epiphyses, the soft diaphyses, the condition of the ossification cartilage, the traction of the muscles, the debility of the muscles, and the pressure of the atmosphere. The locality where the deformities are found depends largely upon the intensity of growth. Growth is most intense in the young child: (1) In the cranium; (2) in the chest; and lastly only in the extremities. I recapitulate only what you all know when I speak of the rhachitic head, with the thin skin, the dilated veins, and the open sutures and fontanelles for two, three, four, or even nine years, as I have seen it. The edges of the sutures are irregular. Such a head is usually large—actually larger than the normal head—relatively it is very much larger when compared with the frequently small body. It is so large that it resembles sometimes the hydrocephalic head. Indeed, some of these heads are to a certain degree hydrocephalic; some are entirely so. Most of them are brachycephalic, quadrangular, with depression on top. In a peculiar class of cases, first studied by Virchow, that of the cretins and semi-cretins, rhachitis is combined with a premature ossification of the occipito-sphenoid synchondrosis. In this condition the base of the skull is shortened. At the same time there is a deep grooving of the root of the nose, the eyes are widely separated from each other, there is shortening of the vomer, and the flat palate, so characteristic for cretinoid conditions. Not infrequently the occiput is slightly flattened, and the oblique diameters are sometimes not equal, so that one side may appear to be entirely flattened. This is particularly the case when we deal with rickety softening of the cranial bones —craniotabes. In such cases there is much perspiration, with loss of hair on the occiput; the veins are more dilated, the skin thinner and paler than in the average case. In these cases of craniotabes one side may be flattened and the other side bulging. The head may even appear to be triangular. Where one side bulges out, and one side is flattened from pressure, the forehead is very prominent, the frontal bone may have three to five times its normal thickness, because of an

*Read before the American Orthopedic Association, 1894.

immense amount of new periosteal soft growth between the periosteum and the bones, which produces a marked deformity of the forehead. This is not always a temporary affair. It is true that craniotabes may leave no trace if it gets well sufficiently soon; but when there is much deposit under the periosteum, it will sometimes remain. When calcification takes place very suddenly, then the thickening of the bone will remain unabsorbed for life. As a rule, however, most of such thickenings are absorbed.

The condition of the teeth is certainly one which should be considered in connection with rhachitic deformity. The teeth appear late or irregularly; when early, the intervals between the first crop and the second, or between the second and third are very long, sometimes six, eight, or ten months. The teeth are frequently discolored, and they decay very easily. Sometimes, however, we find in the second crop that the teeth are very hard and very yellow. Not infrequently we see "Hutchinson teeth" in rhachitic children. This is one of the reasons why Parrot got the idea of explaining every case of rhachitis as the result of syphilis. The lower jaws are short, narrow and very low; the angles very sharp and prominent. The aveolar processes turn inward. Thus the teeth of the upper jaw do not cover those of the lower jaw. The chin in some cases is very low. From the foregoing remarks it will be seen that well-marked rhachitic heads present a very peculiar appearance.

The trunk in rhachitic persons is very short. The clavicle shows much periosteal thickening; it is very frequently bent forward by the pulling of the muscles, and there is not infrequently an infraction between the middle and anterior thirds.

The chest is the seat of a great deal of deformity. It is frequently triangular, sometimes quadrangular; the dorsum is flat and the scapula clings to the body. The ribs, being soft, form a groove in which the arms are frequently buried. There is a predominance anteriorly. On account of the atmospheric pressure laterally above the diaphragm, there is a horizontal groove, called "Harrison's groove." As there is compression above the diaphragm the lower ribs stand outward. As the chest is compressed laterally the sternum is made to protrude, particularly about the third and fourth ribs, and the antero-posterior diameter lengthened. The ribs are prominent at the ossification points. On the cartilages there are frequently nodulations; a complete rosary may be developed quite early. I have seen it at the age of two months, and a case has been published in which there was a complete rosary in a baby of only three weeks. In these extreme cases, the sternum is flat, and the manubrium stands out. Frequently it is pressed down above so as to stand out at an angle at its lower end. The lower end of the sternum may be retracted while the ensiform process protrudes.

Kyphosis is very frequently seen in these cases. It is often but an exaggeration of the normal curvature. Scoliosis has mostly its convexity to the right with compensation above and below. The spinous processes are very frequently directed to the concavity. The intercostal spaces are very narrow on the left side, because there is less curvature of the ribs, and the ribs are bent out.

In the grown-up woman the antero-posterior diameter of the pelvis is shortened. This is not seen to the same extent in the babe. In the normal baby the pelvis is small and the sacrum very steep, not concave as in the adult. Therefore, when compression has taken place because of softening, it is still smaller, so that it is often quite difficult to examine the pelvis satisfactorily; the sacrum may be so changed as to give rise to a convexity inward and contraction of the two sides. This narrowing may be due to the mere fact that the softened bones are compressed on the pillow, or by the arms of the nurse, a pressure which is slight, it is true, but quite sufficient. In very mild cases the symphysis is changed but little. In a number of instances, however, it will be found to be bent forward, and thus in very early rhachitis the rhachitic pelvis may be very similar to the pelvis deformed by osteomalacia. This is contrary to the usual description in the books of obstetrics.

The extremities suffer in different ways in all their parts, the epiphyses and diaphyses, the periosteum, and the epiphyseal cartilages. The epiphysis is frequently thick and painful, particularly on the forearm and tibia. A number of cases of so-called "growing pains" are simply in-

stances of rhachitic epiphysitis. Sometimes the thickening is very considerable; in most cases it is uniform, but in some it is more developed laterally. This is particularly the case on the upper part of the thigh. The diaphysis is usually bent. Semi-fractures take place on the arm, clavicle and legs, from a very trifling application of force. The periosteum, however, being soft, always acts as a shield to the inflamed bone when exposed to the danger of fracturing. In all those cases in which there is much curvature, particularly in the lower extremity, the concavity is inward, and on the forearm and thighs it is very often anteriorly. The difference in the direction of the curvatures depends on the influence of the muscular traction or of the weight of the body. In the very young the concavity of the lower extremity is inward, because of the effect of the flexor muscles. When the bones become, or remain, soft in those who attempt to walk, the weight of the body results in outward curvatures and torsions of many kinds.

The ligaments are very flabby, and give rise to the flat-foot in children that stand up and attempt walking. The periosteum suffers a great deal and in different ways. It is softened and exhibits a thick layer of rhachitic deposit. Calcification occurs in time, and then the diaphysis will be much thicker and harder than in normal conditions. The bones of rhachitical patients, when recovered, are solid and able to stand a great deal of hardship in later life.

In the rhachitical periosteum there may be hemorrhages. Not infrequently in bad cases of rhachitis, and in those cases which in the course of general ill-nutrition develop purpura, there are hemorrhages under the periosteum in the lower and upper extremities. Such cases of decided rhachitis, and those which exhibit similar hemorrhages without being markedly rhachitic, have been thrown together under the heading of, in this country, "scurvy," and abroad, "acute rickets." In all of these cases the children are ill-fed; there is a great deal of pain in the lower extremities and feet, sometimes with and sometimes without periostitis. The hemorrhages will heal and leave a thickening in part of the cases. Hemorrhage of the gums is not a requisite for the diagnosis; it may be absent in those who have no teeth, or who have, and present even where there are no teeth.

Finally, deformities consisting of shortening of the whole limb are due to the early calcification of the epiphyseal cartilages, for it is on their physiological function that the length of the diaphysis depends. When calcification is complete the growth of the bone and that of the limb ceases.

I wish to remind you that rhachitis is a general constitutional disease. In it we have to deal not only with the bones, but with the general system, particularly with another part of the locomotor system—the muscles. The muscles suffer just as well as the bones in rhachitis, and give rise to certain deformities. Both voluntary and involuntary muscles are affected. What has been called rhachitical pseudo-paralysis is not paralysis; it is simply a weakness of the muscles and nothing else. We should have been spared this new term. The muscles are simply poorly developed, and in consequence they are easily fatigued. The involuntary muscles suffer in the same way.

While the muscular tissue is poorly developed, fat is liable to be ample. Rhachitical children, unless emaciated by pulmonary or intestinal disease, are apt to be heavy and rotund, and their weight and appearance are often mistaken for healthy development. But they are flabby, anæmic, and not capable of resisting the attacks of ordinary disease like well children. They prove, moreover, that weight alone is not the measure for healthy and steady evolution.

The muscles in such subjects are flabby, and, consequently, the stomach is apt to be dilated, and the muscular layers of the intestines are apt to give way, thus giving rise to large, flabby abdomens filled with gas, on the surface of which are dilated veins.

The expansion of the intestines, owing to the weakness of the muscles, gives rise to constipation. This constipation is characteristic. Rhachitic children become constipated very early. It is sometimes the first symptom of rhachitis, and shows that the muscles participate in the process at a very early stage. It may begin at the second or third month of life in a child presenting evidences of fairly good nutrition; and it at once leads us to suspect rhachitis. Some deformity of the

abdomen may be due to the spleen, liver and kidneys. In consequence of "Harrison's groove" the liver and spleen are not infrequently displaced, and these organs for the same reason may appear larger than they really are. The kidneys may be found floating. Most of the cases of floating kidney occurring in children that I have met with were in rhachitic patients, showing "Harrison's groove" well developed. But there are cases in which the spleen and liver are actually enlarged from slow congestion and interstitial hyperplasia. They cause the same deformity that is occasionally seen in syphilitic subjects. This is another reason why Parrot came to the conclusion that every case of rhachitis must be syphilitic.

RHACHITIS.—ITS VARIOUS MANIFESTATIONS—DIAGNOSIS, DIFFERENTIAL DIAGNOSIS AND PROGNOSIS.*

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The essence of rickets being the failure on the part of the system to assimilate the earthly salts, and especially the phosphate of lime, we should naturally look for its principal manifestations in those tissues of which lime and phosphorous, singly or in combination, form essential constituents, namely, the nervous and the osseous tissues. And the nervous tissue being more sensitive to irritation and more prone to rapid trophic changes than the osseous, it would not be unreasonable to expect that the results of such imperfect nutrition should first manifest themselves in the perturbation of functions peculiar to it, even though the organic processes of impairment might be going on simultaneously in both. For reasons which we do not understand, however, the nervous disturbances may sometimes be so slight as to elicit little attention, or, even if somewhat marked, may be entirely misinterpreted even in cases in which the degeneration of the osseous tissue becomes considerable. The comparative rarity of the affection in this country is apt to throw us off our guard, and many cases of this disease run their course under the name of gastro-enteritis, intestinal indigestion, intestinal catarrh, and so on, all of which conditions, indeed, may complicate the initial disease. In thus broadly characterizing the nature of this disorder, I do not forget the fact that it has been demonstrated that arterial enlargement or dilatation is a frequent, if not an invariable, accompaniment of the other changes; but it appears to me more philosophical to regard that as one of the morbid processes due to the vice of nutrition rather than as the cause of the alterations in the tissues referred to.

It is a well established fact that children may be born rhachitic. In that case the symptoms of faulty nutrition of the nerve-centres may be present from birth. Otherwise they may develop at any time in the course of the first three years of life, but oftenest during the period of lactation. It is not uncommon for a rhachitic infant to appear vigorous and robust during the first two or three months of life, and even to take on an excessive amount of fat. It will usually, however, offer indications of indigestion, especially in the intestinal tract. This may be accompanied either by obstinate constipation or by diarrhœa; at first oftener by constipation. Frequent attacks of severe colic are not uncommon. The abdomen is tumid. Such infants are poor sleepers, having restless, disturbed nights. It goes without saying, that we should be more on the alert for early indications of this trouble in bottle-fed infants than in those at the breast. This condition may continue for from one to three or four months without further development. It may be that unduly retarded dentition will be the first circumstance to call attention to the probable character of the disturbance. As nutrition of the brain becomes more impaired nervous irritability increases, as evinced by constant fretfulness indicative

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of suffering, restless tossing, especially of the arms, rolling the head from side to side, and loss of interest in surrounding objects. Convulsions are not uncommon. Some writers go so far as to say that rickets is by far the most common cause of infantile convulsions. This statement appears to me somewhat exaggerated. When they do occur they present the ordinary picture—fixation of eyes, pallor, rigidity, embarrassed respiration, with inversion of the thumbs and great toes—"carpopedal contraction." The tonic spasm known as tetany is of frequent occurrence. Less severe cerebral irritation may be manifested simply by twitching of the eyes and lids or of the facial muscles. These disturbances may continue for a few days or may persist at intervals for months. One of the most characteristic of the convulsive manifestations is that of spasm of the larynx, to which the name of laryngismus stridulus has been given, from the hoarse metallic tone produced by the rushing of the air through the tense glottis when the spasm begins to relax. This may occur in various degrees of severity, from a mere momentary holding of the breath to so prolonged a period of suffocation as to threaten, if not actually cause, death.

Implication of the vasomotor nerves is indicated about this time by enlargement of the arteries, already referred to, consecutive enlargement of the veins of the head and the neck, and profuse sweating of the head, especially during sleep.

To the same general cause may be assigned the bronchial catarrh, accompanied by cough, which passes under the name of chronic bronchitis, and often masks the true character of the disorder. Sensory disturbances of the nervous system may occur at almost any time. These manifest themselves as general hyperæsthesia, the flesh being sensitive to pressure at any point, or as tenderness in the joints, producing pain on motion. The child then shows the greatest disinclination to being moved, preferring to lie undisturbed upon the back, and caring little to be amused. Should he be old enough to walk he will gradually evince less and less desire for locomotion until he abandons the effort altogether. This has been explained by the fact that walking caused pain, or on the ground of general debility. My own belief is that there is an actual paresis in many cases, due simply to nerve starvation, and affecting more particularly the nerve fibrils distributed in the muscular tissue, in which the processes of metamorphosis and nutrition are to so great an extent carried on.

More or less closely following the manifestations referable to deficient nutrition of the nerve-tissue appear the trophic changes in the bones. One of the earliest is that known as cranio-tabes, consisting in defective and irregular development from the various centers of ossification in the skull, and perhaps even of absorption of bone cells. This is noticed in undue patency of the fontanelles and sutures and irregular depressions in the occipital region. The sensation conveyed to the examining finger is that of the existence of small oval hollows or soft spots in the occiput. The head is not usually large unless hydrocephalus be present, but is apt to be long, and the forehead is somewhat prominent and bulges laterally, like the prow of a Dutch lugger. Not only is dentition often delayed, but the teeth emerge more widely separated than usual, and are frequently notched as in inherited syphilis. It is in the long bones, however, that the more striking changes occur. These are enlargements of the epiphyses and softening of the shafts, the former due to excessive proliferation, the latter to loss of the mineral framework. The wrists and ankles become awkwardly large and bulbous, while the shafts yield to undue pressure or muscular contraction, thus producing curvatures in the limbs. Among the first of the long bones to afford indication of the changes going on are the ribs, which become enlarged at the sternal extremity, or "beaded," as the phrase is. To this succession of small prominences along either edge the French have given the somewhat fanciful name of the "rhachitic rosary." Curvation of the shafts may begin very early, especially in the tibia. While it progresses more rapidly under the pressure of the weight of the body if the patient is walking, yet it is easily recognizable in infants who have never attempted to stand.

The deformities caused by the rhachitic vice of nutrition are so varied that to describe them would open up the whole subject of orthopedics. Bow-legs, knock-knee, flat-foot, the various spinal deviations, pelvic irregularities and contrac-

tions, and thoracic distortions may all be traced to it. The deformity of the chest is characteristic. The clavicles (well named) lose their power to act as braces, their curves become exaggerated, the shoulders fall together, the sternum and, with it, the anterior extremities of the ribs are forced out, and chicken-breast is developed, often exaggerated at the base of the thorax by the abdominal distention already referred to.

Lateral curvature of the spine, although often resulting, is less frequently observed than posterior curvature, involving the entire spine, but most marked in the dorso lumbar region. In standing this curve is often apparently reversed, owing to obliquity of the pelvis and the necessities of equilibriation, producing a marked lordosis.

The diagnosis of rickets is a matter of little difficulty when once the characteristic bone-changes have developed in any considerable degree, and it is in that stage that cases usually come under the observation of the orthopedist. But in the early months of the affection, when it is usually amenable to treatment, as hinted at the opening of the paper, it unquestionably often escapes recognition until irreparable injury has been done. Constantly compelled, as we are, to witness the life-long mortification and misery which attend the later manifestations, it would seem to be our duty to call the attention of family practitioners to the great importance of being on the watch for the earliest indications of the disease in artificially nourished infants. This affords one of the many fields opening for preventive medicine. The diagnostic marks have been sufficiently pointed out in the description of the manifestations of the affection.

As regards the *differential diagnosis*, attention has already been called to the fact that in its incipiency it is frequently treated for comparatively long periods as a gastro-enteric disorder, just as spinal caries has too often been, owing to the fact of its initial gastralgia. The practitioner may also be misled by the *quasi* chronic bronchitis.

Bradford and Lovett in an admirable *resume* of the subject in their *Treatise on Orthopedic Surgery*, say: "Rickets is so often the outcome of a long period of ill-health that it is difficult to say where the rhachitic symptoms begin." To this statement I take respectful exception. I believe the long period of ill-health which often precedes the characteristic lesions to be simply the initial stage and not the cause of the disease. It is the failure to recognize this initial stage which leads to the development of so much deformity. Any bottle-fed infant who suffers from constant indigestion and nervous irritability should be subjected to the most careful scrutiny. If profuse sweating of the head, abnormally large secretion of urine, copious phosphatic deposits in the urine, and hyperæsthesia are found to exist, it is quite unnecessary to wait for lesions of the osseous tissue to confirm the suspicion of the existence of rickets.

Rhachitis may be mistaken for Pott's disease, true lateral curvature, congenital syphilis, and acute rheumatism.

The first-mentioned affection is the only one which is likely to produce much confusion in the mind of the practitioner, and from that the discrimination is often extremely difficult when the excurvation is in the lower third of the spine.

In Pott's disease the rigidity is greater and more persistent, especially on first awaking from sleep; the paroxysms of pain are more acute, and in the intervals of pain the little sufferer is comparatively cheerful. There is not the history of traumatism in rickets which is almost always found in caries. There is often a peculiar transparent waxy pallor in the earlier stages of rickets which does not accompany the same stage of the tubercular disease.

Idiopathic lateral curvature rarely occurs at the early stage at which rickets appears, and the latter disease has set its unmistakable seal on other parts of the skeleton before the spine has begun to show serious indications of distortion.

Acute rheumatism is rare in infants, is acute in its course, and is usually accompanied by high fever. The periarticular swelling, with frequent red discoloration of that disease, is quite unlike the clubbing of the ends of the bones in that under discussion.

The absence of snuffles, sore throat and mucous-membrane and skin lesions serve to differentiate the latter from syphilis of the newborn, although there is some similarity in the bone changes.

Of the necessity for the exercise of the

utmost care in avoiding the error of confounding the early symptoms with those of simple bronchitis and gastro-enteric disturbances, and of the means of so doing, enough has been said above.

The *prognosis* of rhachitis is to be considered with reference first to fatal result, and secondly to the production of deformity.

The books usually make very light of the gravity of the affection as threatening life. It certainly figures very rarely in the mortality returns. I believe that this is due in part to failure to recognize the disease, and that very many cases which have the death certificate made out for acute pulmonary diseases, convulsions, or disorders of the digestive tracts, ought properly to be labelled "rickets." An affection which so profoundly affects the nutrition cannot be regarded as trifling. The diarrhœa of rhachitis will sometimes carry off its victim in a few hours with all the violence of *cholera infantum*, and the bronchial catarrh which has continued for weeks with little modification, may suddenly terminate in a fatal engorgement of the lungs. Too great vigilance cannot be exerted, therefore, for the detection of the disease at the earliest possible moment, inasmuch as the usual remedies for the other affections named, if not positively harmful, will at least have no beneficial effect on this deep-seated vice of assimilation.

Discovered in time, however, it is usually amenable to treatment, and in the very large majority of cases not only can life be saved, but serious deformity can be averted. It is often as surprising as it is gratifying to see what appropriate regimen and medication, unaided, will accomplish toward the correction of very marked distortions of rhachitic origin. Add to these the potent influence of massage over the nutritive processes, the mechanical redressment which can be effected by carefully regulated exercise, both passive and active, and our ability to control and correct processes of deformation by judiciously devised appliances, and the outlook becomes a very hopeful one. When once decided changes have shown themselves in the skeleton, even if distortion can be avoided, loss of stature will inevitably result.

In conclusion, I would call attention to the fact which I think I have observed, that rickets and its congener, scurvy in infancy, have within the past few years been decidedly on the increase. In point of fact, if one looks over the text-books on the diseases of children, written forty or fifty years ago, he will fail to find the slightest allusion to the last-named disease. And this, notwithstanding the fact that our fathers in medicine saw it twenty times in the adult where we see it once. Manifestly it was not for want of familiarity with its symptoms that they failed to recognize it as one of the infantile diseases. Indeed, we need hardly go back more than ten years to find medical literature barren of allusions to this subject. To what are we to attribute this somewhat sudden increase in diseases of defective nutrition. Is it simply a coincidence that this condition has developed simultaneously with and *pari passu* with the introduction of the practice of the sterilization of milk? One curious feature of this increased development of these affections is that we meet it not among the poor, not among those whose hygienic environment is faulty and whose food supply is insufficient or of inferior quality, but among the children of the wealthy, who live under the most favorable conditions, with strictest attention to hygienic precautions and an abundant supply of the richest milk.

Let us consider for a moment the part which ferments play in the preparation of food for digestion and assimilation. We know to how great an extent the digestibility of the great staple of life, bread, is increased by the development in the flour of the *saccharomyces cerevisiæ;* how beer in its various forms becomes a wholesome drink through the action of the same ferment; how the vinous fermentation furnishes both healthful beverages and useful stimuli; how the acetic fermentation supplies us a most valuable condiment. We also know that of all the ferments none approaches so near the fluid known as the gastric juice as lactic acid. We know what a wholesome and nutritious article of diet milk becomes in the shape of curds and whey, buttermilk, cheese, and matzoon, after having been acted on by the lactic-acid ferment. We know that under all ordinary conditions milk contains the lactic-acid bacterium. Now, is not the supposition warranted that, up to the point when this ferment has been devel-

oped in milk to such an extent as to produce an acid taste, which leads most persons to dislike it, its action on that fluid may be in the highest degree favorable to its digestibility and assimilability? Moreover, may not the lactic acid have a very important function in taking up the lime-salts, and in combination with phosphoric acid, putting them in condition to be absorbed by lacteals and appropriated by the system? The fact that sterilized milk is indigestible no one questions. May we not be denying our infants some of the most important of the constituents of milk, allowing them only the fats while we deprive them of the salts? To atone for presenting them a less-digestible milk we pre-digest it, thus depriving the stomach of the natural stimulus afforded by the presence of food requiring digestion, discouraging the secretion of the gastric juice, and still further interfering with the assimilation of the mineral constituents. Do we not perhaps need to revise our recent conclusions on the subject of infant diet and sterilization of milk?

TRANSLATIONS.

THERAPEUTICAL SUGGESTIONS FROM FOREIGN JOURNALS.*

TREATMENT OF FRESH WOUNDS.

Dr. Wechselmann (*Medicinische Neuigkeiten*, No. 45, 1894) warns the general practitioner against the use of the multitude of new antiseptics which have recently been thrown upon the market, for they are of doubtful value and dear. The bichloride, carbolic acid and iodoform are the standard antiseptics. Besides these absorbent cotton, sterilized mull, iodoform gauze, pure soda, potash soap sublimated silk and bandages are the requisites for the surgical bag. The chief duty of the physician in fresh wounds is the prevention of infection. The first important feature is the disinfection of his own hands. Here Fuerbringer's advice is applicable: washing the hands for one minute, with a brush, potash soap and warm water, then follow for one minute with alcohol and finally, for one minute, washing with a bichloride solution, 1:1000. The brush should be kept continuously in a 1:1000 solution of the bichloride or be frequently boiled in a soda solution. It is more convenient to keep special brushes for suppurating wounds as well as special instruments also for this purpose: two scalpels, one dressing forcep, an artery forcep, a pair of shears and a director. They should be boiled for fifteen minutes after each time used in a solution of soda. A simple enameled kettle is quite sufficient. The instruments are merely placed in this vessel, enough water placed over them to cover them and about a tablespoonful of soda added for each quart of water and then it is placed on the stove. In ten to fifteen minutes while the other preparations are being made they will have been boiled sufficiently. The kettle and the instruments are then cooled by placing it in a larger vessel of cold water. In a the fresh wound one may proceed as follows: wound is first covered without having been previously touched, with a compress wet with a solution of the bichloride, 1:1000, the instruments sterilized as directed, the hands disinfected, the vicinity of the wound disinfected by washing with potash soap and water always away from the wound towards the periphery, if necessary shaving and then with a second washing with alcohol and the bichloride. The wound is then covered with a second compress, the hands again disinfected, the instruments then are taken out of the soda solution and placed into a clean dish (no antiseptic solution is necessary) and then the wound is attended to. In wounds that are greatly crushed or where asepsis is doubtful a place should be left open and slight drainage be made with a strip of iodoform gauze. The wound is then dusted with iodoform powder, covered with iodoform gauze and with absorbent

*In charge of the translator, F. H. Pritchard, M.D.

cotton and then over this a simple mull or starched gauze bandage. The first dressing should be renewed according to the size of the wound from the third to the fifth day when, at the same time the stitches and drainage may be partially or wholly removed. The second dressing should be removed if an uncomplicated course is expected at about the time that healing will have taken place, as too frequent and unnecessary changing of the dressing only hinders healing. After this a piece of cloth, spread with a boric acid salve, is quite sufficient. In suppurating or otherwise infected wounds dry dressings do not do as well as moist ones which are changed once a day or oftener. Here compress, wet with a 1:2000 or a salicylic acid solution, over which is placed gutta percha, paper, etc., will do good service. Beware here of a carbolic solution which frequently acts as a caustic and on the fingers gives rise to gangrene.

MERCURIAL TREATMENT OF TABES DORSALIS.

Dr. Shuster (*La Semaine Médicale*, No. 71, 1894) is an advocate of mercury in tabes dorsalis. It is contraindicated in those weakened by long duration of the disease, while in those still robust it will bring about a decided amelioration, and that not only where there is syphilitic history, but where the antecedents are negative on this point. It is best administered as the bichloride in pill form and in daily doses of one milligram, continued for a long time, and in connection with the following pill:

Arsenious acid.....	0	05	gr. ¾
Strychnine.....	0	10	" jss
Extr. and powdered licorice. ..	q. s.		

Sufficient for one hundred pills. One to two a day.

TREATMENT OF URTICARIA.

Dr. Brocq (*Revue Intérnationale de Medecine et de Chirurgie Pratigues*, No. 19, 1894) recommends, in the management of urticaria, the following measures:

Apply locally the following salve:

Carbolic acid.....			
Essence peppermint.....	ää 1	0	grs. xv
Oxyde zinc			
Lanoline.....	ää 20	0	ʒv
Pure vaseline.....	60	0	ʒij

At the same time, prescribe each day from two to six of the following pills:

Muriate quinine.....			
Ergotine.....	ää 0	10	grs. jss
Extr. belladonna.....	0.01–0	02	" ⅙–⅓

Before applying the ointment one may apply locally a lotion with vinegar, cologne water or chloral as a base.

CHLORATE OF SODA AS A REMEDY.

Dr. Barrat (*La Medicine Moderne*, No. 8, 1894) has found the chlorate of soda less toxic and more soluble than the corresponding potash salt. He has given it in two cases of cancer of the stomach, in doses of ten grams (ʒijss) a day, in one of which he claims a successful result (?). In a case of epithelioma of the upper lip he injected a cubic centimetre (gtts. xv) every two days into several points of the tumor. The result was successful for healing followed.

DISAGREEABLE ACTION OF THE DIPHTHERIA ANTITOXINE.

Dr. V. Cnyrim (*Deutsche Medicinische Wochenschrift*, No. 48, 1894) injected a fellow practitioner for a diphtheritic attack with ten ccms. of Hoechster serum, No. 2, respectively, No. 3. The disease soon disappeared. In six days an urticaria-like exanthem appeared on the thigh at the place of injection, followed in the next few days by enlargement of the neighboring glands, pains in the elbow and knee joints, muscular pains with hammering headache and a rise of temperature to 39.5° C. In ten days from the time when first injected the symptoms began to decrease. Dr. K. was also attacked with similar symptoms after injection of 10 ccms. of serum No. 1. Here the general symptoms appeared after four days, the first glandular involvement after seven days, as in the former case at an angle of the jaw, and urticaria appeared on the eighth day. From the eleventh day the symptoms began to abate. Even twenty-one days after he experienced pains in his right arm and had difficulty in using it.

LOCAL TREATMENT OF DIPHTHERIA.

Dr. Ignatovsky (*La Semaine Médicale*, No. 67, 1894) speaks highly of the following as quite efficient in the local treatment of diphtheria:

Essence of peppermint	8	0	ʒ ij
Essence of turpentine.....			
Petroleum, ää.....	30	0	ʒ j

Apply locally on a swab every one to two hours.

HOW AND WHEN TO GIVE DIGITALIS.

Professor Huchard (*Médicine Moderne*, No. 9, 1894) protests against the tendency of physicians to wait in asystolia until the disease has reached its final stage. On the contrary, one must act energetically from the very beginning. The three capital indications for the use of digitalis are:

1. Weakening of the contractile force of the heart.
2. Lowering of arterial with heightening of venous tension.
3. Scanty urine with peripheral œdema and visceral congestions.

One should not wait until these congestions have set in, but give the remedy as soon as perimalleolar or peritibial œdema is noticed in the evening. Before administering it he would have his patient rest in bed and put him on partial or absolute milk diet for several days. The second or third day he would administer a purgative consisting of 60 cgms. (grs. ix) of calomel and resin of scammony in two powders. The following day he prescribes 40 to 50 drops of a 1-100 solution of crystalized digitaline, *i.e.*, 1 mgms. of the amorphous variety. The next day its effects will be remarked and the quantity of urine will be increased.

TREATMENT OF THREATENING AND INEVITABLE ABORTION.

Dr. C. Marocco (*Le Semaine Médicale*, No. 67, 1894), in cases of unavoidable abortion, advises tamponing the vagina with gauze soaked in glycerine and administering internally one of the following powders:

Phenacetine.....	o | 30	grs. v
Muriate morphine.....	o | 01	grs. 1-6

Sufficient for one powder. Make three such. One each hour.

Under the influence of this treatment the abortion will terminate almost without pain in twenty-four hours.

COMPARATIVE VALUE OF THE DIFFERENT PREPARATIONS OF IRON IN ANEMIA.

Dr. Herschell (*Medicinische Neuigkeiten* No. 49, 1894) has experimented on sixty-five polyclinic patients with regard to the comparative therapeutic value of the various preparations of iron in anemia and he has obtained results which deserve to be known. As a means of determining he employed Fleischl's hæmometer before beginning and on the twentieth day of treatment. His results were as follows:

Blaud's pills gave an average daily increase of 1.2 per cent. (tabloids).
Blaud's pills gave an average daily increase of 0.5 per cent. (ordinary pills).
Sulphate of iron gave an average daily increase of 0.5 per cent
Chlorate of iron gave an average daily increase of 0.5 per cent.
Citrate of iron gave an average daily increase of 0.5 per cent.
Albuminate of iron gave an average daily increase of 0.125 per cent.
Dialyzed iron gave an average daily increase of 0.125 per cent.

These results are in striking contrast with those claimed to have been obtained with the different albuminates sold by the various manufacturers. This may be explained by the fact that the carbonate of iron is most active in statu nascendi, *i.e.*, when formed in the stomach by the mutual action of the sulphate of iron and the carbonate of potash upon each other as takes place with Blaud's pills. With the albuminates, peptonates and colloid preparations a deposit of the insoluble carbonate is formed in the stomach when coming in contact with the hydrochloric acid. Hence the old method of prescribing iron is still the best.

POISONING BY A THERAPEUTIC DOSE OF CREASOTE.

Dr. Zanadski (*Wiener Medizinische Presse* No. 51, 1894) reports the case of a women who within twenty-four hours took six drops of creasote, three times, in milk. Soon symptoms of intense disturbance of the stomach and intestines followed accompanied by anesthesia and paresis of the velum palati and of the vocal cords; besides she presented traces of its caustic action on the mucous membrane of the mouth and throat, albuminuria and signs of heart weakness; the breath smelled strongly of creasote. Death followed after a week. The necropsy revealed numerous bloody suffusions of the stomach and intestines, a few ulcerations of the œsophagus and pyloric end of the stomach, degeneration of the liver, acute nephritis and hyperemia of the brain. He explains this unfortunate result by the fact that creasote is insoluble in milk and acts as if undiluted and to a peculiar idiosyncrasy. He therefore recommends beginning with small doses, one to two drops, and only gradually increasing the dose.

POISONING BY GLYCERINE AS A VEHICLE FOR IODOFORM

Dr. Schellenberg (*Hospitals Tidende* No. 51, 1894) would reject entirely the use of glycerine as a vehicle for iodoform in its local use, as it is capable of giving rise of decidedly disagreeable or even fatal results. He would at least advise great caution in employing it on extensive wound surfaces or in large cavities. He would regard ten ccms. as the largest quantity to be used at one time in children and twenty to twenty-five ccms. in adults. Glycerine is capable of provoking all degrees of renal irritation from reddish discoloration of the urine, with presence of red blood corpuscles and casts, to a state of collapse with uremia and death.

LEMON JUICE AS A HEMOSTATIC.

Dr. E. T. Burton (*Wiener Medizinische Presse*, No. 49, 1894) speaks highly of the use of lemon juice as a hemostatic. In a severe case of epistaxis, in a plethoric young man with copious hemorrhage from both nostrils, after injection of a solution of lemon juice and water (1:4) into the nose with an ordinary glass syringe the hemorrhage ceased. In a case of hematemesis in a woman of thirty years, in whom all the usual remedies had failed the hemorrhage ceased at once after employment of pure lemon juice. It returned, however, the next day but was rapidly controlled by the use of this simple remedy so that she rapidly convalesced. In a case of intestinal hemorrhage, in typhoid fever, it was also given with equally favorable results, for it ceased as if by magic. The patient died, however, from exhaustion. In the last two cases there was violent vomiting and everything except the lemon juice was ejected.

HEART DISEASE AFTER THE GRIPPE.

Dr. Sansom (*Hospitals Tidende*, No. 50, 1894) finds that some of these cases require nothing beyond a regulation of the hygiene as they present no symptoms. As a rule the patient suffers more or less and the physician may be called during a dyspeptic attack or a "vagus storm," as he calls it. These are best treated by bismuth and alkalies or together with small doses of arsenic. During the painful crises morphine subcutaneously is occasionally necessary though opium, as a rule, is not tolerated. Phenacetine is an excellent remedy in controlling the pain; chloralamid is of service in the sleeplessness, sulphonal is by no means harmless and chloral and the opiates are injurious. In the treatment of arhythmia digitalis is harmful and all other heart remedies excepting belladonna are inactive; this latter, in some cases, has given him good results. Though the action is not so striking as in tachycardia yet a beneficial result will be obtained by application of the galvanic current to the pneumogastrics. It may be applied for six minutes, three times a day, but it must be quite weak. At least six months are necessary before marked improvement is noticed.

COCAINE TO STOP THE SECRETION OF MILK.

Dr. E. Casoli (*Norsk Magazin for Lægevidenskaben*, No. 12, 1894) in a woman whose child died soon after its birth and who was troubled with a profuse secretion of milk, ordered her apply to both breasts, twice a day, a five per cent. solution of cocaine. In one day the secretion was greatly diminished and in two days it had ceased entirely.

TREATMENT OF POST-PARTUM HEMORRHAGE.

Professor Leopold (*Lo Sperimentale*, No. 35) says that if one be called to a woman who is losing blood, on account of the difficulty of ascertaining promptly the cause of hemorrhage one should proceed to examine systematically. The bladder should be first emptied; then it should be seen if the uterus is contracted; if this be so, then the hemorrhage comes from the vagina, the cervix or the lacerated clitoris. If examination of the placenta shows a piece to be lacking, it should be sought for and extracted. As to the membranes the treatment differs, for only those in the vagina or cervix are to be removed. Cervical lacerations should be looked for and treated. If this is impossible, tamponing is the next best measure which, however, has its disadvantages on account of one being obliged frequently to employ material which is far from aseptic. Tamponing the vagina alone is not sufficient as the hemorrhage is liable to continue into the uterus. In extensive

laceration of the cervix, introduction of the hand into the vagina and manual compression of the lips of the collum with the hand, if continued for ten minutes or longer, will suffice in some cases. On the contrary, the cervix may be drawn down and the laceration be sutured. Tamponade of the lower segment of the uterus will sometimes suffice when this fails. He thinks that post-partum hemorrhage is often due to too rapid expulsion of the placenta by the physician. Tamponade is especially indicated in atonic hemorrhages.

TREATMENT OF NEPHRITIS WITH THE WET PACK AND PILOCARPINE EXTERNALLY.

Dr. H. Mollière (*Wiener Medicinische Presse*, No. 49, 1894) warmly advocates the use of the wet pack and pilocarpine in the treatment of nephritis. The latter remedy is employed as a salve of the following constituency:

Nitrate pilocarpine....0.05–0	10	(gr. ¾–jss.)
White vaseline 100	0	(℥ij ℥j.)

The whole trunk is rubbed with this salve. Large doses of the drug will cause disagreeable skin eruptions which will render interruption of treatment necessary. After inunction a layer of cotton batten is applied, over this some impermeable material and the whole fixed by a bandage. The dressing is only changed when it is completely saturated with sweat; it may be renewed after several hours. The results were the same in patients with and without milk diet and consisted in a rapid recovery in acute and immediate improvement in chronic cases. In these latter the result might extend over several years. He has treated thus at least fifty cases, and in all except in those where there were signs of extensive destruction of renal parenchyma the results were quite satisfactory. The advantages of his method he claims are in the sudorific properties of pilocarpine and the increased diuretic action which is the more efficacious as it takes place through the nervous system and not through an action on the kidneys. The action of the drug seems to be purely local for none could be detected in the urine. He thinks his method of especial value during convalescence when the patient is tired of milk diet and returns to an ordinary diet.

GUAIACOL IN TONSILLITIS.

Dr. E. Darbonet (*La Semaine Medicale*, No. 70, 1894) is quite enthusiastic over the results which he has obtained with guaiacol in the treatment of tonsillitis. He would not advise its use pure as it is too irritating, but mixes it with equal parts of glycerine; in children in proportion of one to two. He applies it locally on a swab four times in twenty-four hours, late at night before going to bed and early in the morning. Thus the patient will pass a comfortable night. The first sensation is disagreeable but this soon disappears and, in a moment, the patient finds to his astonishment he can easily swallow. The painfulness returns, but is well under control of the remedy.

Methol in Diptheria.

F. Kastorsky (*Brit. Med. Jour.* reports thirty-seven cases of diphtheria (in three adults and thirty-four children) treated and cured by painting with a ten per cent. alcoholic solution of menthol. The paintings (by means of a piece of cotton wool) were usually carried out three times daily. In some cases, however, a single free application was followed by complete disappearance of false membranes within two days. A marked improvement in the patient's general condition was invariably noticed from the beginning of the treatment. The same simple method was successfully practiced by the author in numerous cases of anginas of various forms, and by Trütovsky in a group of cases of scarlatinal diphtheria.

A New Method of Disinfecting the Mouth and Throat.

Experimenting with colored fluids, the author found that only the soft palate and tongue came in contact with the solution used, and consequently they are without value. He recommends the use of bonbons made from saccharine and resin guaiaci, and claims that in their use the entire mucous membrane of the mouth and throat is brought into contact with the disinfectant used. Their value is proven in that the bacteriological examination of the secretion of the mouth shows it to be free from bacteria after the use of the bonbons, when they had been present before.—*Szanas in Archiv. fur Kinderheikunde, Arch of Pediatrics.*

BACTERIOLOGICAL NOTES.

BACTERICIDAL POWER OF DOG'S BLOOD AND ITS RICHNESS IN LEUCOCYTES.

Much has been written upon the bactericidal power of the blood of different animals. The practical outcome of this work is being manifested at present in the use of serum in the treatment of diphtheria. In view of the importance which often attaches to the results of apparently insignificant experiments, the results of such work as Havet has recorded (*La Cellule*, x (1894) p. 221) should not be overlooked. Havet has carried on experiments with dogs for the purpose of testing the germicidal effect of serum. He finds that the white blood corpuscles almost or altogether disappear when microbic products are injected into the blood, and this disappearance is coincident with partial or total loss of bactericidal power. As the leucocytes reappear the bactericidal power of the serum returns *pari passu*. When living cultures are injected into the tissues, the stage of hypoleucocytosis is accompanied by a diminution of the bactericidal power and conversely, hyperleucocytosis by increase. This increase is due to the presence of leucocytes in greater numbers, and is not the result of some newly acquired property of the serum. No fixed relationship between richness in leucocytes and bactericidal power can be established, for the leucocytes may be weakened either by a previous digestion of microbes, or by microbic poison. Leucocytes, in case of two kinds of organisms, may incorporate both or only one.

DIFFERENCES BETWEEN BACTERIUM COLI COMMUNE AND BACILLUS TYPHOSUS.

Fremlin (*Archiv f. Hygiene* xix, p. 295) enters into a long discussion of the differences existing between these two species of bacteria. He has compared the morphological, cultural and pathogenic properties of these two species. He used cultures of *B coli* obtained from man and several of the lower animals. He found that *B coli* presented two appearances on gelatin, viz., membraniform film and points. He finds that there are distinct differences between the two organisms. *B typhosus* is more motile, and possesses several flagella which are easily stained. *B coli* has only one flagellum which is stained with difficulty. *B coli* gives the indol reaction—*B typhosus* does not. The latter has a great tendency to form filaments by the connection of several individuals. *B coli* forms more rapidly on agar and gelatin than the typhoid bacillus.

[Since Rovet and Roux published the results of their investigation in which they advanced the idea that these two bacteria were identical, the REPORTER has endeavored to give a *resumé* of the work done on these two organisms to affirm or refute their conclusions. The importance of positively identifying these forms render the consideration of all facts bearing upon this point unusually interesting. The statement of Fremlin in reference to the morphology of the two organisms has been shown to differ from the results stated. Moore found that the flagella stained quite as easily in one species as the other. He also found that the number were nearly as great. More recently Bunge (*Fortschrette der Med.*, Nov., 1894) confirms Moore's results. The difference in the gas producing power of this organism as determined by Smith is also omitted. It is interesting to note, however, the difference in the tendencies between the French and German investigators in reference to the identity of the two organisms.—ED.]

THE MORPHOLOGY OF BACTERIA WITH SPECIAL REFERENCE TO THE BACILLI OF ANTHRAX, TUBERCULOSIS AND DIPHTHERIA.

The investigations that are being made with reference to the identity of the bacillus of typhoid fever and *bacillus coli* renders all work bearing upon the morphology and especially the polytypes of pathogenic bacteria a matter of considerable interest. Recently Klein (*The Quarterly Journal of Microscopical Science*, 1894, vol. 36) has published the results of his observations on the morphology of the three species of bacteria in question, from which he concludes that they are not typical bacilli as they are usually represented to be. He finds that while under many conditions their morphological characters are those of typical bacilli, under other conditions they are not, but revert to or assume forms indicating their relationship to saccharomyces or to still higher mycelial fungi. With regard to the bacillus of diphtheria the author points out that the club-shaped expansions of one or both ends are not to be regarded as due to involution, for both under natural and artificial conditions where there is active growth, these expansions will be found, and have moreover, a striking resemblance to the ends of growing hyphæ. Their existence therefore is to be explained by their representing a relationship to a mycelial fungus. For the other two species he shows in a somewhat similar way their relation to higher fungi.

[The fact is well known that many eminent bacteriologists consider certain pathogenic bacteria to have sprung from forms not supposed to be pathogenic, but the conclusions of Klein in which he attributes the most characteristic morphological characters of these bacteria to analistic stages found in higher fungi will undoubtedly meet with much adverse criticism.—ED.]

NEW METHOD FOR STAINING TUBERCLE BACILLI.

Leutelle (*Bull.-Soc. Belged de Mic.*, xx, p. 184) recommends a somewhat new process for staining tubercle bacilli in any condition of tissue or in cover-glass preparations. The preparations are to be immersed for one to twenty-four hours in carbol-rubin and then transferred to a 1.5 per cent. solution of permanganate of potash. This is followed by immersion in a saturated, aqueous, freshly prepared solution of sulphuric acid. The preparations are then washed in water, after which they may, if desired, be double-stained with saturated aqueous solution of methylineblue. In this case the sections are washed, dehydrated in alcohol, cleared in xylol and mounted in balsam.

STAINING MICRO-ORGANISMS IN THE BLOOD.

Vincint (*Gaz. Med. de Paris*, 1894, p. 296) recommends the following method for staining micro-organisms in the blood. The cover-glass preparation is prepared in the usual manner. After which it is treated for 1 to 2 minutes in the appended solution: 5 per cent. carbolic acid 6 cc.; saturated salt solution 30 cc.; glycerine 30 cc; the solution is to be filtered before using. This fluid dissolves the hæmaglobin, does not alter the shape of the red corpuscles and causes no precipitate. The fluid is drained off, the preparation washed in water, is counter-stained in carbol-methyline-blue plus ½ per cent. aqueous methyl-violet solution. This method is mentioned as a good process for demonstrating the malarial plasmodia.

THE DEMONSTRATION OF INFLUENZA BACILLI.

Borchardt (*Berlin Klin. Wochenschrift*, No. 2, 1894) records his experience with Pfeiffer's influenza bacillus which he found in thirty-five out of fifty cases examined. He lays much stress on the observance of the method used by Pfeiffer. The bacilli are demonstrated in the sputum which must be fresh and washed with sterile water. Cover-glass preparations are then made from the central portions of the lumps of sputa and stained with carbol-fuchsin 1 to 10, after which they are washed in water or decolorized in dilute acetic acid. The bacilli are observed free and often in pure preparations but usually other bacteria are present. The influenza bacilli sometimes appeared within the cells, and again in little clumps or swarms.

The influenza bacilli may be demonstrated in the sputum for at least a week during the course of the disease. As they do not react constantly to staining reagents the microscopical examination does not always succeed, especially when from polar staining they resemble diplococci. Cultivations are sometimes unsatisfactory. Cultures are best made by washing a mass of sputum in sterile water and placing it in a tube of bouillon and throughly mixed, from which tubes of inclined agar or agar containing blood can be inoculated. Although these cultures are impure usually, the influenza bacilli form small, clear, homogeneous, structureless colonies by which they can as readily be distingushed from those of the other bacteria.

CORRESPONDENCE.

CIRCUMCISION.

EDITOR MEDICAL AND SURGICAL REPORTER:

DEAR SIR: I notice in THE REPORTER of February 9, 1895, page 218, an editorial on Circumcision, which you reprint from the *Medical Record*. To allow this editorial to go unchallenged would be doing mankind in general a great injustice, unless its author wishes to confine his remarks to a very much shortened and retractable prepuce.

Circumcision may be a relic of barbarous and semi-civilized times, but we cannot deny it many advantages.

The removal of the prepuce serves as many useful purposes at the present time, as it did among the nomadic tribes of tropical countries. We have no assurance when a child is born that its habits will be sanitary to any degree whatever.

It is a fact that syphilis and gonorrhea are less prevalent among men who do not have prepuces than those who possess them.

Any man in the practice of medicine should know that it is not necessary to remove the prepuce if it does not cover more than one-third of the glands and can be retracted with ease beyond the corona, unless it should be eczematous or otherwise diseased.

A personal experience with two hundred and twenty-five circumcisions leads me to say that it is one of the most valuable of operations, and that I would, without hesitation, advise its general adoption.

I am very truly,

MERRILL RICKETTS.

Cincinnati, O., Feb. 14, 1895.

EDITOR MEDICAL AND SURGICAL REPORTER.

DEAR DOCTOR; I should be greatly obliged for any information that may be sent me personally or through your columns, regarding the efficacy to the salol and potassium iodid tests for gastric motility and absorption, respectively. Information is particularly desired with regard to cancer, ulcer and other serious troubles. Due credit will be given for any such information, providing the results of my study are published.

Very truly yours,

A. L. BENEDICT.

174 Franklin St.,
Buffalo, Feb. 12, 1895.

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SATURDAY, FEBRUARY 23, 1895.

EDITORIAL.

AN OVERCROWDED PROFESSION—THE DEMAND FOR PHYSICIANS.

Last week we considered the medical profession and the opportunities of its members from the purely business standpoint of demand and supply. In this issue, we purpose to discuss in greater detail the demand.

The student of medical history is struck with this important difference between the physicians of almost all the nations of antiquity and of the middle ages, and those of our own century. The former, though, on the whole, occupying a lower social level, seem to have been less dependent on their practice, and, in their purely medical capacity, appear to have exercised a greater influence on their patients. A slave, a half-educated priest, an itinerant quack, attained reputations unknown in our days, received large fees, and were sought after by such crowds of people as, in these degenerate times, even the free dispensaries fail to attract. It may be that the accounts of the past are exaggerated, that the fortunate ones of whom we read were the exceptions; at any rate, we know that the attainment of even the moderate success which is possible in modern times, is an extremely difficult matter.

What are the sources of the demand for a profession to minister to the sick; and has there been any material change in this demand during recent times?

With the development of an highly artificial state of living, sickness increases up to that time when the need of exercise and the systematic attention to such various sanitary details as sewerage, plumbing, heating and ventilation, cleaning of streets and removal of garbage, is recognized. Within the last ten years, a tremendous advance has been made along these lines. Physical culture (using the word in no limited sense) has become fashionable. The free use of intoxicants, of tobacco and similar articles, the overindulgence of any of the appetites are frowned down by the very classes of so-

ciety which formerly fostered these vices. There has been a great increase in the spread of popular knowledge within recent years, and public sentiment now demands attention to hygienic details which would have been ridiculed or denounced as an infringement of individual rights, a decade ago. We are just at the beginning of the municipal use of expert bacteriological and chemical skill for the preventing of disease; yet the diminution already apparent, is great. Twenty years ago, small-pox was a not uncommon occurrence in general practice. Now, there are thousands of well-educated and experienced physicians who have never seen a case. Diphtheria, scarlet fever, cerebro-spinal meningitis were epidemic, almost endemic in many cities where they are now seen in scattered cases throughout certain months of the year. All these facts, gratifying as they may be to every right thinking physician, indicate a lessened demand for his services. Wholesale medicine has supplanted the retail efforts of the family doctor in the domain of sanitary science.

Children are born into the world, and the sentiment in favor of the obstetrician as against the midwife, professional or amateur, is growing. But it is noticeable in every highly civilized country that well-to-do families are producing fewer children; the births predominating among that class of the community which depends upon medical charity.

It is unnecessary to more than allude to the medical pauperizing of a large class of a community, particularly in cities, by hospitals, dispensaries and the like. The evil has not been exaggerated, and we can add but one new thought on the subject; namely, that the growth of such institutions is not only the cause of a relative poverty of medical men, but is the result of the overcrowding which drives physicians to expend their superfluous energy in charity work, with the hope that the experience or prestige of such occupation may lead ultimately to something better. Surgery in general practice has been almost wiped out of existence by emergency hospitals. Indeed, if a man of means fell unconscious within a block of his own home, the chances are that he would be conveyed to a hospital miles away before his friends could learn of his misfortune. Railroad companies are awakening to the fact that they can get a good share of their surgical service for nothing, and many have already contracted with emergency hospitals at rates which are only a fraction of what they willing paid years ago. Medical charity is thrust in the face of the community and, with increasing expense of living in cities, it is only the most honorable who will pay for medical service.

The diminution of infectious diseases, the inroads of free institutions, the observance of sanitary laws, the increase of poverty, all tend to lessen the demand for physicians' services. We should consider it a fair estimate to say that a ratio of one doctor to six hundred of the population now would be about equivalent to one to four hundred ten years ago. In other words, there should be no greater annual addition to the ranks of the profession now than when the population of the country was considerably smaller. This statement naturally leads to the consideration of the supply of physicians by medical schools, a subject which must be passed over at present.

It would seem that the demand for medical men might be increased by extending the domain of the medical profession. Graduates in law, for example, include real estate dealers, business men of all kinds and politicians beside the judicial and pleading branches of the legal profession proper. To a certain extent, the creation of boards of health, the appointment of municipal and state bacteriologists, chemists, etc., the

maintainance of insane asylums, almshouses, etc., do open new fields of usefulness to our profession, but, as a rule, medical men acting in the capacity of public servants are not well compensated, especially when comparison is made with the purely political office holders; and as has already been intimated, one man acting with the support of public office, indirectly removes the necessity of ten general practitioners.

We are not to be included in the category of those mercenary physicians who lament the occurrence of "healthy weather," or who complain, as one old man did to us some years ago, that "there has not been an epidemic for a long time." It is a great blessing that the earnest efforts of the profession for preventive medicine are beginning to bear fruit. There will always be a need not only for sanitary and hygienic advisors, but for an actual ministering profession. We need have no fear of the abolition of medical practice, but we must recognize the fact that fewer men will do the work of the coming generation, or else the remuneration of the average physician must suffer such diminution that he will be reduced to poverty if he has no means outside of his professional earnings.

ABSTRACTS.

THE DOCTORS OF NEW YORK REGIMENTS IN BROOKLYN.

It is always a hardship for men to be taken away from their business for the purpose of doing military or jury duty, and the service required during the recent strike in Brooklyn of a large part of the National Guard resident in the city of New York was an unusual hardship, for the weather was uncommonly trying, the men were badly housed and fed, a great share of what they did was in the line of police duty rather than military service, and they were almost constantly exposed to the missiles of concealed foes. Yet there was next to nothing from them in the way of complaint, even in private. They did there work manfully, indeed heroically.

Among these men there were members of our pofession, men who could ill afford the interruption of their practice that had to be submitted to. People are notoriously impatient and unreasonable when anything interferes with their obtaining their own doctor's attendance without delay, and we can well imagine the unamiable and captious remarks that must have been made in many a family during the week that a number of New York doctors were obliged to stay in Brooklyn. Moreover, there must have been in many instances a serious break in the continuity of a line of treatment that had been laid out. The doctors that we have in mind were not only the medical officers of the various commands, but also a very considerable number of physicians in the ranks. This was fortunate for the efficient prosecution of the medical service, for the regiments were for the most part in scattered detachments, and the medical privates were available for detail to medical duty. A number of doctors were thus made more useful than they could have been had they remained in the ranks, but that fact did not abate the chagrin they must have felt at an unnecessary sacrifice of their own interests. But there was no complaint on the part of these doctors, whether regimental officers or privates. They all did their duty faithfully, efficiently, and cheerfully, and they are deserving of the highest praise. The National Guard is certainly to be congratulated on the character of its medical men.
—*New York Medical Journal.*

Evaporating Lotion:

Ammon chlorid	ʒi
Sp rectificati	ʒii
Sp etheris	ʒi
Ac acetic	ʒiss
Aq destillat	ad ʒxii

To be applied on lint in severe sprains.
—*Pharmacopeia of Royal Infirmary.*

A NEW TREATMENT FOR TUBERCULOSIS.

For many months Dr. Paul Paquin, of St. Louis, has been experimenting with a remedy for tuberculosis. His conclusions were recently presented to the St. Louis Medical Society in a demonstrative manner. There can be but little doubt that Dr. Paquin has discovered nature's own treatment for tuberculosis. It is, perhaps, not saying to much to state that he has discovered a cure for that dreadful list of maladies to which the name tubercular has been applied. He employs the serum therapy, using the serum of the horse, an animal which rarely, if ever, contracts tuberculosis. In a large number of patients in the city hospital and poor house, upon whom the new treatment was tried, a gain in weight, a diminution and cessation of expectoration, a fall in temperature and, in fact, an amelioration of all symptoms was obtained.

Dr. Paquin presented the clinical histories of twenty-two cases treated with almost uninterrupted improvement. Nearly every case had gained in weight. Cough had entirely disappeared in patients with large cavities. The serum is obtained from horses rendered strongly refractory to the germ of tuberculosis by laborious processes. A remarkable feature in the result of the treatment was that not one of the seven cases which Dr. Paquin presented to the society coughed once during the entire evening. This, too, was after exposure to a cold wind on a very bad night. Dr. Paquin did not present conclusions with regard to his experiments, but expressed the opinion that the immunized horse-serum would soon be the natural agent to prevent and treat tuberculosis. He said that it was obviously too early to reach reliable conclusions, although the results seemed sufficient to justify the hope that the serum would arrest tuberculosis.

The results obtained by Dr. Paquin were confirmed by Dr. George W. Cale, a skilled bacteriologist and able surgeon. Dr. Cale believes that in the serun therapy we have a remedy of the greatest importance for bone and joint tuberculosis.

The preparation of the serum is expensive and requires minute attention to details. The filtration of the serum is a matter of the greatest importance, and in this Dr. Paquin was assisted by Dr. Given Campbell, who discovered a method of filtration superior to any heretofore in use.

It is worthy of note that the three gentlemen whose names have been mentioned above are young men, exponents of that scientific school of medicine of which Pasteur, Koch, Kitasato, Roux and Behring are leaders. It should also be remarked that they are ethical gentlemen who are not seeking notoriety. Unlike many of the older men of St. Louis, particularly the surgeons, they are peaceful citizens.—*Ed. Med. Fortnightly.*

DIPHTHERIA ANTITOXIN—SERUM THERAPY IN DIPHTHERIA.

The most interesting and important contribution to the recent Congress at Budapest was the report of M. Roux upon the serum therapy of diphtheria. The investigations cover a period of over three years and were carried on at the Pasteur Institute and the Hôpital des Enfants-Malades, with the assistance of MM. Martin and Chaillou.

BACTERIOLOGICAL AND EXPERIMENTAL WORK ON ANIMALS.

The process of obtaining an antitoxic serum is briefly this: by prolonged cultivation of virulent diphtheria bacilli in a specially prepared bouillon at a temperature of 37° C., with exposure to sterile air, a concentrated toxin is obtained in about three weeks, of such a strength that one-tenth of a cubic centimeter will kill a 500 gm. guinea-pig in forty-eight hours. After filtration this toxin is kept in tightly closed flasks away from the light. For the purpose of immunization this toxin is diluted with one-third of its volume of Gram's solution. While immunization was obtained in several species of animals, the horse was chosen as furnishing a

larger amount of serum with greater ease, and one which of itself causes the least disturbance when injected into other animals. By injecting repeated and gradually increased doses of the toxin, a horse is rendered immune, that is, able to receive 250 c.c. of pure toxin without disturbance, in two months and twenty days.

The serum from such an animal when added to the diphtheria toxin makes it inoffensive, and the mixture injected into animals causes no disturbance even of a local nature. The mixture may be made equally well in the animal's system. The serum, whether given before, with, or after the injection of the toxin, enables an animal to endure an otherwise absolutely fatal dose of toxin. It appears from experiments which we cannot here detail that the protective influence of the serum is not exercised by destroying the toxin but by stimulating or in some way affecting the tissue-cells so that they do not respond to the poison. If the tissues have been vitiated, as by the toxin of the streptococcus, they are not responsive to the serum, and the action of the diphtheria toxin is only delayed. The dose of the serum varies with the weight of the animal, the doses of the toxin and the relative time of administration.

Most of the experiments with serum were made under the skin, but a considerable series were made upon the mucous membranes, which were of especial interest for the clinician, as they gave an opportunity to study the action of the serum on the diphtheria of an external surface. Diphtheria was caused in female guinea-pigs by excoriating the mucous surfaces of the vulvæ and thereafter rubbing them with the pure culture of diphtheria bacilli. The character of the inflammation and the structure of the membrane thus caused is in every way similar to that in children. The guinea-pigs, who otherwise invariably died, recovered without exception if the serum was injected in a sufficient dose before the inoculation of the mucous membrane. In all these cases a false membrane is formed, but the redness is less extensive, the tissues less swollen and the fever less intense. After the second day the local lesions diminish, the false membranes become detached and repair sets in. Guinea-pigs of equal weight with the same virus, but not treated with the serum, died in six days. The protected animals received one-ten-thousandth of their weight of serum. The result was in every case the same if the serum was injected at the same time with the inoculation of toxin.

In a second series of cases the serum was injected after inoculation; the false membrane had already been developed for about twelve hours; the redness and swelling were very marked. If at this time the serum is injected in a dose of from one to ten thousandths of the weight of the animal, it recovers without exception. In a few hours the edema ceases, and on the second day the false membrane becomes detached. After the repair of the mucous membrane no diphtheria bacilli were found. The rapidity with which the false membranes were cast off was remarkable. Unprotected animals died on the fifth or sixth day.

The third series of cases was undertaken upon guinea-pigs and rabbits inoculated in the trachea. The guinea-pigs thus treated died, usually in three days, if not protected. The pathological appearances were in every way similar to those in children. When inoculated in the trachea after having received the serum treatment, they did not take diphtheria. If the quantity of serum was not sufficient the disease, however, made its disappearance after a short delay. The animals injected with toxin after serum treatment gave no evidence at all of the disease.

In cases of diphtheria associated with streptococci infection the serum only rarely brought about a cure; not that there was a larger amount of diphtheria toxin or that the antitoxic power of the serum was annulled, but because the cells depressed by the poison of the streptococci no longer responded to the stimulation of the serum. No better results were obtained in treating animals previously vaccinated against the streptococci; possibly the serum of the rabbits was not sufficiently effective against the variety of streptococci which was used.

CLINICAL OBSERVATION AND RESULTS IN CHILDREN.

After this long and careful experimentation the authors were prepared to apply their results to the treatment of diphtheria in children, which was done in the diphtheria ward of the Hôpital des En-

fants Malades. Treatment was begun on the first of February, 1894, and continued until July 24th, thus covering the winter months in which diphtheria is the most prevalent and severe, and the summer period when the disease is notably rare. The wards were visited each day, and all children found there were treated, whatever their condition. No discrimination was made, so that the results of several months' treatment could be fairly compared with previous times. No change was made in the other care of the sick. The local treatment remained the same (cleansing with solutions of boric acid); the serum was the only new element introduced.

During the years 1890, 1891, 1892 and 1893, when no serum was used, the hospital treated 3,971 children, with a mortality of from 47.64 per cent to 58.8 per cent. an average of 51.71 per cent. From February 1st to July 24th this year, there were 448 admissions and 109 deaths, a mortality of only 24.5 per cent. That this improvement was not due to a mild form of the disease this year is shown by the statistics of the diphtheria ward of the Trousseau Hospital, which admitted during the months of February, March, April, May and June this year 520 children. None of these patients received serum treatment, and the mortality was 60 per cent.

Operative cases have previously given an average mortality of 73.19 per cent. From February to July this year the mortality was only 49 per cent. under serum therapy. During the same period at the Trousseau Hospital, without the use of serum, the mortality of operated cases was 86 per cent. Of the 448 cases treated, 128 were found on bacteriological examination not to have diphtheria, and 20 died immediately on entrance, without receiving serum treatment. Of the other 300 cases of true diphtheria, 78 died, a mortality of 26 per cent. In 65 cases guinea-pigs were inoculated with bacilli from the membranes; 60 of them died within 30 hours, and three within a week, two only recovering.

Every child at entrance was given 20 c.c. of the serum in a single injection, under the skin of the flank. If bacteriological examination showed that the patient did not have diphtheria, the injection was not repeated. The injections made into the subcutaneous tissues were not painful, and in a few moments the serum was absorbed. In the great majority of cases there was no local reaction, and only where strict antiseptic precautions were neglected. In only three cases did an abscess occur, which healed rapidly after incision. In cases of true diphtheria, 24 hours after the first injection a second was given of from 10 to 20 c.c., which was usually sufficient to bring the case to a cure. The pulse and temperature were taken as a guide. If these remained elevated a third injection was given. The average weight of the children treated was 14 kilos, so that at the first injection they received a little more than a thousandth of their weight in serum. The minimum quantity of serum employed in any case was 20 c.c., the maximum 125 c.c. During the convalescence, some days after the injection of serum, an eruption resembling urticaria was occasionally noticed.

The general condition of the children treated by serum rapidly improved, provided the disease was not too far advanced. The appearance of most of the children was entirely altered from previous years. They are not pale and livid, but their color is bright and they appear gay and interested. The appetite quickly returns, and there is but slight loss of flesh. Their stay in the hospital is notably shortened.

The effect of the serum on the local lesion is most marked; within 24 hours the false membranes cease to extend, and within 48 hours they become detached, always by the third day; in seven cases only did they last longer. Bacilli disappeared from the throat at the same time with the false membranes, cultures ceasing to give colonies of the Klebs-Löffler bacillus by the third or fifth day.

The temperature rapidly falls under the action of the serum; in the less severe cases the decline often occurs the day after the first injection, and is scarcely noticeable after the second day. The fall is often so sudden as to be represented by a vertical line upon the temperature chart, as if the disease had been arrested at one blow. In the severe cases the defervescence does not begin until after the second or third dose, but then falls by a rapid lysis.

The pulse varied from 120 in the benign

to 140 in the severe cases, and was more slowly affected by the serum than was the temperature, frequently remaining high after the fever had ceased, and never reaching a normal rate before the temperature. After treatment by serum the pulse was never observed to have the irregularity during convalescence which was so frequent in former times.

Persistent and abundant albumen in the urine was noted only in certain of the most severe cases, and there is little doubt that the serum prevents the action of the toxin upon the kidneys and lessens to a large extent the number of cases.

The accidents consecutive to diphtheria are much rarer among those treated by serum. There were a few cases of paralysis of the palate of short duration, one case of paralysis of an inferior limb, and one of general paralysis in a child nine years old, who entered on the sixth day of the disease. The paralysis appeared three weeks after recovery, and the child died of asphyxia while eating a biscuit. Three children died of syncope—two within 26 hours of entrance, and one, who had had measles, on the third day.

From these experiences there seems little doubt that every case of pure anginal diphtheria will recover if treated in season with immunized serum.

The results in mixed cases were similar to those in animals. Cases of diphtheria associated with the staphylococcus pyogenes are more severe, but all the five cases observed recovered after a longer period. The amount of serum used varied from 30 to 50 c. c. The association with the streptococcus gave rise to the gravest cases, of which there were 35 with 12 deaths (34.2 per cent.) Omitting four who died within 24 hours of entrance there was a mortality of but 25.8 per cent. The duration of these cases was the longest, the children who recovered being at least 15 days in the hospital. Under the use of serum the general symptoms were notably less severe, the pallor of the face less, the false membranes became detached more easily, and the swollen glands ceased to increase after a sufficient injection. In these cases the serum did not bring the rapid fall of temperature noticed in true diphtheria. In case the disease is to terminate favorably, the pulse falls within the first two days to 120, and remains at that rate for a considerable time.

The statistics of the operated cases, the details of which we cannot give here, point strongly to the conclusion that in cases of laryngeal obstruction operation should be delayed as long as possible after giving the serum. During the period of serum treatment only 40 per cent. of the cases came to operation, as compared with 50 per cent. or over in previous years; but of these 121 cases, 102 were operated before the injection of serum, or within 12 hours of the first dose; 14 between the 12th and 36th hour after the beginning of treatment; and but five more than 36 hours after receiving the antitoxin. It is impossible to say how many of these would have escaped tracheotomy if the serum had been administered sooner, but there is no doubt that with the serum treatment, tracheotomy should in a large majority of cases be replaced by intubation. If the imminent danger of suffocation can be thus relieved for one or two days, there is little doubt that sufficient time will be gained to obtain a cure by means of the serum.

The local treatment in connection with the serum therapy should be of the simplest nature. No swabbings or paintings with caustics or carbolic acid or corrosive sublimate. A douche or boric acid solution to the liter or boiled water, two or three times a day, is quite sufficient.

In concluding, Mr. Roux said that they were convinced that with better means of isolation than existed at the Paris hospital the mortality could be still further reduced.—*Boston Med. and Surg. Journal.*

For Blepharitis

Millendorf recommends, (*Col. and Clin. Rec.*)

Red oxide of mercury..... gr x
Vaseline..... f ʒ ss

Sig. Apply to the edge of lid at bedtime.

Or,

Ammoniated mercury..... gr xx
Powdered camphor..... gr x
Vaseline..... f ʒ ss

Sig. Apply at night.

Or,

Solution of subacetate of lead.... gtt x
Ointment of rose-water..... ʒ iij

Sig. To be used for the more chronic forms of marginal blepharitis.

PERISCOPE.

IN CHARGE OF WM. E. PARKE, A.M., M.D.

MEDICINE.

Where Our Drugs Come From.

"Principal Exports to the United States" is the title of a pamphlet lately issued by the State Department, which is of especial interest from the fact that it gives the value of our imports and the names of the products and the countries from which they are derived. The report is compiled from the reports of the various consuls of this country, and the figures bearing upon the extent of the drug and chemical imports are interesting both on account of the magnitude of the commercial interests involved in the trade and the fact that they show that the most remote portions of the earth are called upon to supply our demand for drugs and medicines. The figures given, with a few exceptions, cover the calendar year 1892, and the report is arranged to show the value of goods as "declared for export" in the various consular districts. From the Buda-Pesth and Vienna districts of Austria-Hungary we receive drugs and chemicals amounting to $122,758. From Trieste insect powder and flowers amounting to $71,884. From France our imports include olive oil, drugs, chemicals, argols, dyestuffs, toilet articles and perfumery, and amounted to $2,564,000. Germany furnished us with drugs, chemicals, dyes, colors and essential oils to the amount of $9,193,849. Greece sent us $24,108 worth of sponges. From Italy we received olive oil, brimstone, canary seed, crude glycerine, soap, argols, orris root, almonds, licorice, sumac and essential oils, valued at $4,909,704. The Netherlands sent us cacao butter, drugs and dyestuffs amounting to $366,470. Corkwood worth $1,069,057 and argols worth $131,805 came from Portugal. The Batoum district, Russia, furnished us licorice root valued at $624,363. Spain furnished us cream of tartar, glycerine, licorice, saffron, corkwood, olive oil and canary seed worth $1,505,505. Sweden and Norway sent us $82,055 worth of cod-liver oil and oxalic acid worth $18,090. Little Switzerland sent us anilines, dyestuffs and chemicals worth $439,518, and enough argols and beef extract to make the total $475,760. We received from Turkey in Europe $403,013; attar of roses, $141,929; gum tragacanth, $55,620. From the United Kingdom, which seems to be a sort of clearing-house for the world, we received drugs and chemicals amounting to $12,570,180. British North America sent us $22,003 worth of senega root and $12,664 worth of sulphur. Sarsaparilla worth $67,577; vanilla, $710,580; fustic, $130,913; gum chicle, $475,665; and silver dollars, which are apparently a drug on the market, to the amount of $454,031, came to us from Mexico. China furnished cassia, $164,497; gall nuts, $5,730; and rhubarb, $16,454. Dutch India, gum damar, $64,729; gum copal, $30,452; cassia, $26,593. Japan, sulphur, $226,025; menthol, $23,391; camphor, $522,152. Philippine Islands, indigo, $16,369; ylang ylang oil, $10,002. Turkey in Asia, licorice root, $1,023,710; opium, $451,431. New Zealand, kauri gum, $1,997,607. Tahiti (Society Islands), vanilla, $36,698. Honduras, sarsaparilla, $30,951; chicle, $4.604. Brazil, copaiba, $28,958; guarana, $8,078; castor beans, $22,774. Chili, nitrate of soda, $2,880,643; iodine, $579,313. Peru, coca leaves and elixir, $5,329. British West Indies, sponges, $236,555; dyewoods, $186,842; ginger, $40,734; pimento, 126,400. Dutch West Indies (Curacao), aloes, $3,047. Guadeloupe, vanilla, $1,660. San Domingo, dyewoods, $38,307. Porto Rico, bay rum and oil, $3,494. Canary Islands, cochineal, $17,382; almonds, $3,877. British Africa, argols, $10,088; palm oil, $1,892. Egypt, senna, $36,627. Algiers, corkwood, $22,159. Morocco, canary, cumin and coriander seeds, $4,735. Zanzibar, cloves, $289,688; clove stems, $4,058; gum copal, $51,836. British Asia, Aden, civet, $4,898. Culcutta, drugs, $4,272,076; saltpeter, $518,845. Ceylon, cocoanut oil, $937,331; cinchona, $73,185; essential oils, $73,015. Hong Kong, opium, prepared, $543,091; cassia, $79,170; medicines, $51,418. Singapore, gambier, $733,855; gum copal, $119,493.—*Pharmaceutical Era.*

Thioform as a Substitute for Iodoform.

Dr. Julius Schmidt states that thioform is a grayish-yellow powder, which is a chemical combination of bismuth, sulphur and salicylic acid. It is tasteless and odorless, insoluable, and was first prepared as a substitute for iodoform. This expectation has been verified in so far that surgically its value is equally great, but the specific of iodine, as required in tuberculous affections, is not obtained. When applied to fresh wounds thioform produces a rapid drying of the surface, leading to a more rapid cicatrization than has been observed after the use of any other application. This was noticed even in extensive surface lesions, such as burns, weeping eczema and gangrenous patches, the latter having healed in four days. The author tested the powder in five cases of ulcer of the leg, which had resisted other treatment. The ulcer having been cleaned and disinfected, the thioform was thickly dusted over it, and covered with cotton-wool and a bandage. Every fourth day the whole dressing was changed, and though the patient continued to walk during the treatment, the cure required two or three weeks only. Some pain was occasionally produced, but no sign of irritation could be seen. Similar results in the practice of other surgeons are given. Finally, the author used thioform internally

after having satisfied himself as to its non-poisonous character, and with daily long-continued doses of fifteen grains, better, though similar, results were obtained than with salicylate of bismuth.—*Medical Record.*

Management of Eczema.

Dr. Malcolm Morris thinks that, as a general rule, the less internal remedies we use the better, but that if a constitutional dyscrasia be recognized it must, of course, receive appropriate treatment. When the skin lesions are acutely inflammatory the use of antimony seems beneficial, and the author gives ten or twelve minims of wine of antimony, repeating the dose in an hour, and, if necessary, in two more. Gradually the interval is increased and the dose lessened until six minims are given three times daily, and this is continued until the inflammation subsides. Arterial tension is an indication for the use of this drug, and depression a positive contra-indication. Deficient strength and nerve force may call for strychnia, arsenic, belladonna, phosphorus, quinine, etc., but the author thinks diet has only an indirect influence, through its effect on digestion, the general health, etc.—*Pacific Med. Jour.*

Cause of Death in Skin Burns.

Kianicine (*International Med. Mag.*) has made some experiments to determine the presence of a ptomaine in the blood of animals affected with burns of large extent. In thirty-five experiments the ptomaines were found both in the blood and in the organs, while the blood of healthy animals, prepared in identically the same manner, did not contain this ptomaine. The method of Stas-Otto was employed in the same manner as is done by Brieger for preparing the peptotoxine. Extraction is accomplished at a temperature of 80° C. (176° F.), with alcohol, evaporation, and the digestion of the remainder with amyl alcohol. Next, evaporation to dryness, dissolving the product in water, and purification by means of the subacetate of lead, by the use of sulphurretted hydrogen; and finally a purification by means of ether. This poison develops only in animals burned or scalded, and is not a product of chemical manipulation. Some special reactions are given for it in the paper.

Lactophenin.

Lactophenin is phenacetin: in the group, acetyl is replaced by the group lactyl. It is white fine crystalline powder, with an agreeable bitter taste, soluble in 330 parts of water. Dosage: 0·6 gramme, three times a day. The maximal dose is 1 gram three times daily. It acts as an analgesic in neuralgia, and in full doses as a hypnotic. It gradually reduces temperature, which remains low for a long time. In typhus fever it calms the excitement, stops delirium, and produces sleep, and in typhoid is credited with cutting short the fever.—*Les Nouveaux Remedes.*

Methyl-Blue and Epithelioma.

Dr. Darier, in a communication to the Academy of Medicine of Paris, reports the success of Dr. Mosetig, of Vienna, with the methyl-blue treatment of cancers, though M. Dentu has not with methyl-blue obtained cures. The author relates a series of cancerous tumors of the face cured rapidly by the daily application of a twenty per cent. solution of the drug. He considers the drug to have a specific action on cancer. A daily touching of the sore with the solution will effect a cure; but the good result will be more quickly produced by cauterising the carcinoma with chromic acid or the galvano-cautery. For deep-seated carcinoma he recommends the solution to be hypodermically injected. Tumors whose surface is broken should be covered by a healthy skin-flap on or about the fifteenth or twentieth day after treatment commenced. Dr. Darier presented to the academy a patient who had had epithelioma of the left eye, and was then quite free of the disease, its site being marked by a cicatrix. This was the ninth case the doctor had thus treated, and with success in all.—*Les Nouveaux Remedes.*

Mechano-Therapy in Chronic Diseases of the Heart.

In the *Practitioner*, Eccles writes an article on this subject. He believes the rationale of the treatment of certain chronic diseases of the heart, by a combination of rest, massage, assisted and resisted exercise, followed by outdoor walking carefully graduated, is based upon,—

1. The rest afforded to the overstrained or enfeebled heart by the adoption of the recumbent position for a time.
2. The aid given to the circulation by the mechanical centripetal pressure exercised on the limbs and trunks by massage.
3. The more rapid oxygenation induced by the acceleration of the circulation, and the diminution of peripheral resistance by the same means.
4. The improvement in general nutrition, the elimination of waste products, and the increased metabolism induced by the passive and active exercises in and out of doors.
5. The careful preparation and selection of suitable food, coupled with the aid to digestion afforded by abdominal massage and exercises acting directly on the walls of the abdomen, and exercising pressure on its contents.
6. The substitution of regular, graduated, assisted, and resisted movements for the spasmodic and ill-regulated exercise taken by patients suffering from cardiac functional disturbance, with or without organic lesion.

Enlarged Glands.

Iodoformi.....	āā ʒi
Bals Peru.....	
Collodii.....	ʒi

Sig. To be painted over swellings every night.

GYNECOLOGY.

New and Speedy Method of Dilating a Rigid Os in Parturition.

At a meeting of the Obstetrical Society of London Dr. Farrar (Gainsborough) gave the details of two cases in which he had used a ten per cent. solution of cocaine as an application to the rigid os. In one case he had applied the cocaine after endeavoring vainly to relax the cervix by means of chloral, bromide of potassium and morphia and the most persistent attempts at digital and mechanical dilatation, with and without chloroform. He decided upon incising the os and used the cocaine to this end. After five minutes he introduced the finger as a guide to the scissors; and to his surprise found the os widely dilated. In the second case, a primipara, forty-eight years of age, he used every effort as before to produce relaxation, and waited three days before making the application of cocaine, which was immediately successful. In four minutes the os had yielded. He considered the dilatation to be due to the cocaine in both cases.

Dr. Armand Routh said that Dr. Dibbs, of Shankin, had recommended cocaine as relieving the pains of the first stage of labor, and that Mr. Head Moore advised cocaine and boric acid pessaries in cases of rigid os. He himself had found it useful.

The president, Dr. G. E. Herman, said that two cases were rather a slender foundation upon which to base a conclusion, but if Dr. Farrar's results were confirmed by further experience he would have made a valuable addition to our obstetric resources.— *The Lancet.*

Sugar in the Treatment of Uterine Inertia During Labor.

It remained for Mr. Bossi, of Genes (*Rev. Illust. Polytechnique Medicale*), to make practical application of a theory propounded by Drs. Paoletti and Mosso, that sugar taken internally might be found to exhibit as stimulating an effect upon the group of uterine muscles as it has on voluntary muscles. Bossi administered a dose corresponding to an ounce of sugar in about eight ounces of water. A most excellent effect was observed after the first dose in all but one of the cases, the ecbolic action showing itself in from twenty to forty minutes and nearly always lasting till the birth of the child. In the other case a second dose had to be given. The contractions were always quite regular and free from any tetanic tendency.

OBSTETRICS.

The Psychoses of the Climacteric Period.

Prof. P. J. Kowalewski, of Clarkow, in a recently published paper, "Menstruationszustand und die Menstruations Psychosen," says that during the climacterium insanity may appear in two forms: in the one, the course of the disease is periodical, and the attacks accompany the menstrual periods, or occur at the time when these periods are expected but do not appear; in the other, the psychosis has no direct connection with the menstruation, but seems intimately related to all the symptoms of the climacteric. The mental symptoms of these psychoses vary greatly. They may be characteristic of anxietas, melancholia, mania, amentia, or parnonia, etc. Although these symptoms are not especially characteristic, the influence of the climacteric may be easily recognized. Thus, the anxietas precordialis occurs in more or less regular attacks, corresponding to the time of the expected menstruation. The same may be said of the periodical exacerbations of hysterical and epileptic attacks. It is often found that at such times sudden changes in mood and character may develop without such symptoms being characteristic of either melancholia or mania. The melancholia of the climacteric period is especially met with in married women leading an unhappy domestic life, and is often accompanied by attemps at suicide. Sometimes the melancholia is of a hypochondriacal type; at other times it is associated with delusions of a religious character, persecutory ideas, or erotic hallucinations. Mania is a rather uncommon form of insanity during the climacteric, and is generally characterized by hallucinations, sexual excitement, violence, phantastic ideas and obscene behavior. It is usually met with in widows, old maids of not very high morals, and, generally speaking, in person with unsatisfied sexual cravings, or in such who have committed excesses in venery. Amentia does not often occur during this period in the maniacal form; more often in connection with the menstruation in the form of a periodical psychosis or as an uninterrupted attack, with exacerbation corresponding to the menstrual periods. It is often accompanied by an extreme erotism. Particularly characteristic of the climacteric period is paranoia, occurring mostly in old maids with a psycopathic predisposition. The morbid ideas of such persons are concentrated about men, who make love to them on every occasion. They finally accuse their persecutors of having made criminal assaults upon them. The patients believe that a certain man, who is often unknown to them, or may even be living in some other town, maintains marital relations with them. From being persecuted, the patients finally become persecutors, who torment their victims with letters, or even go so far as to make an open scandal of it. In some cases a perversion of the sexual instinct may show itself by persons of their own sex having an attraction for them. These persecutory ideas as regards the men, in which hypnotism, spiritualism, the telephone, etc., figure extensively, together with the sexual delusions and nymphonomaniacal symptoms, are so often met with in the climacteric period that this form may be considered the climacteric insanity *par excellence.—St. Petersburger medicinische Wochenschrift.*

PHYSIOLOGY.

The Resistance of Living and very Vascular Tissue to Gastric Digestion.

John Hunter, in 1772, pointed out the *Post-Mortem* digestion of the stomach and adjoining organs by the gastric juice. He attributed the resisting power of the living organ to "the living principle." In 1856, Pavy showed that the leg of a frog or the ear of a rabbit, introduced through a gastric fistula into the stomach of a dog, would be then digested. Pavy attributed self-preservative power of the living stamach walls to the presence of alkaline blood and lymph neutralising the acid gastric juice. By stopping the circulation at certain points he produced autodigestion of small areas. Claude Bernard thought the protection was due to the mucous coating, but Schiff observed a wound of the mucosa for six weeks, without softening or autodigestion of the deeper coats.

Gaglio injected gastric juice into the bladder of living rabbits, after ligation of the ureters, and no digestion occurred.

Gaspardi and Viola have detached the spleen from its usual position, and maintaining its vascular integrity, introduced it into the stomach through an artificial opening, and it has remained there as long as sixty-four hours undigested. But, as peritonitis had supervened, digestion may have been inactive.

Ch. Contelean (*Archiv. de Physiol., Norm. te Patholog.*), to test this further, has introduced loops of the animal's bowel into the gastric fistula. The animals have recovered, and lived more than five weeks. One dog, operated upon on the 27th of March, was killed on the 4th of May. Several small perforations of the loop of bowel were found, but the wounds had heated by the formation of a continuous epithelial coat between the mucosa of the stomach and intestine; and only at one small area was the intestinal muscle laid bare.

M. Contejean concludes that the stomach is preserved from autodigestion by the epithelium of the mucosa, and by the circulation maintaining the vitality of this epithelium. The epithelium acts, perhaps, by exercising a selective *role* in absorption, hindering, whilst living, the active principles of the gastric juice from penetrating into the depths of the walls of the stomach (experiment of Sehrwald.) When the epithelium is absent, the circulation of the blood sweeping away the digestive juice as the mucosa absorbs it, permits lesions of the walls to cicatrise, and clothe itself anew with a covering of indispensable epithelium. The importance of these observations in connection with operations upon the stomach and the treatment of gastric ulceration is evident.—*Glascow Med. jour.*

The Excitability of Rigid Muscles.

J. Tissot (*Archiv. de Physiol., Norm. et Patholog.*,) as a result of experiments, concludes that (1) cadaveric rigidity is a phenomenon not incompatible with the life of muscles, and its appearance is not a proof of death, that it can appear in living muscles which may remain excitable (electrically, mechanically, or chemically) for a long time afterwards; that (2) the vapour of chloroform acts as an excitant, and not as a coagulant of muscle; and that (3) the sensibility of muscles to certain chemical reagents persists after the appearance of rigidity and disappears last (except in the fœtus, where it has seemed to disappear sooner that mechanical excitability.) The fact that contractility might be demonstrated in muscle washed out with arterial blood even several hours after the appearance of rigor mortis has been long known, and affords support to the proposal recently made in America to resuscitate criminals who have been put to death by powerful currents of electricity.

Treatment of Migraine.

In the *Gazetta Medica di Roma*, the following formula is recommended in the treatment of migraine:

Citrate caffeine	gr. xx.
Phenacetine	gr. xxx.
White Sugar	gr. xv.

Sufficient for ten capsules.
One every three to four hours during the period of the attack.

ARMY AND NAVY.

CHANGES IN THE U. S. ARMY FROM JANUARY 27, 1895, TO FEBRUARY 16, 1895.

The extension of leave of absence on account of sickness, granted First Lieutenant Henry R. Stiles, Assistant Surgeon, is still further extended two months on surgeon's certificate of disability.

The extension of leave of absence granted Captain Reuben L. Robertson, Assistant Surgeon, is further extended fourteen days.

The leave of absence, on account of sickness, granted First Lieutenant James M. Kennedy, Assistant Surgeon, is extended one month, on account of sickness.

Lieutenant Colonel Henry R. Tilton, Deputy Surgeon General is announced as Medical Director, Headquarters Department of Dakota.

First Lieutenant Guy C. M. Godfrey, Assistant Surgeon, will proceed without delay from Fort D. A. Russell, Wyo, to Fort Omaha, Neb., and report for temporary duty.

Colonal Charles C. Cyrne, Assistant Surgeon General is relieved from duty as Medical Director Headquarters Department of the East.

CHANGES IN THE U. S. MARINE HOSPITAL SERVICE FOR THE SIXTEEN DAYS ENDING JANUARY 31, 1895.

Austin H. W. Surgeon: To proceed to New Bedford, Mass., as Inspector, January 18, 1895.

MEETINGS OF STATE MEDICAL SOCIETIES FOR 1895.

Society.	Name and Address of Secretary.	Time and Place of Meeting.
Alabama	J. R. Jordan, Montgomery	April 16, Mobile
Arisona Territory	L. D. Dameson, Phœnix	February 5, Phœnix
Arkansas	L. P. Gibson, Little Rock	May 1, Little Rock
California	W. W. Kerr, San Francisco	April 16, San Francisco
Colorado	E. R. Axtell, Denver	June 18, Denver
Connecticut	N. E. Wordin, Bridgeport	May 22, Hartford
Delaware	W. C. Pierce, Wilmington	June 14, Wilmington
Florida	J. D. Fernandez, Jacksonville	April 16, Gainesville
Georgia	D. H. Howell, Atlanta	April 17, Savannah
Idaho	C. L Sweet, Boise City	September 9, Boise City
Illinois	J. B. Hamilton, Chicago	May 14, Springfield
Indiana	F. C. Woodburn, Indianapolis	May 30, Indianapolis
Iowa	J. W. Cokenower, Des Moines	April 17, Creston
Kansas	G. C. Purdue, Wichita	May —, Topeka
Kentucky	Steele Bailey, Stanford	June 5, Harrodsburg
Louisiana	P. B. McCutchon, New Orleans	May —, New Orleans
Maine	C. D. Smith, Portland	June 5, Portland
Maryland	J. T. Smith, Baltimore	April 26, Baltimore
Massachusetts	F. W. Goss, Boston	June 11, Boston
Michigan	C. W. Hitchcock, Detroit	June —, Bay City
Minnesota	C. B. Witherle, St. Paul	June 29, Duluth
Mississippi	H. H. Haralson, Forest	April 12, Jackson
Missouri	F. R Fry, St. Louis	May 21, Hannibal
Montana	W. M. Bullard, Helena	April 16, Anaconda
Nebraska		
Nevada	W. A. Phillips, Reno	January 14, Reno
New Hampshire	G. P. Conn, Concord	May 30, Concord
New Jersey	Wm. Pierson, Orange	June 25, Cape May
New Mexico	F. H. Atkins, East Las Vegas	July 12, East Las Vegas
New York	E. D. Ferguson, Troy	October 16, New York
North Carolina	R. D. Jewett, Wilmington	May 14, Goldsboro
North Dakota	G. A. Carpenter, Fargo	May 25, Fargo
Ohio	T. Hubbard, Toledo	May 15, Columbus
Oklahoma Territory	C. D Arnold, El Reno	
Oregon	F. Canthorn, Portland	May 31, Portland
Pennsylvania	Wm. B. Atkinson, Philadelphia	May 21, Chambersburg
Rhode Island	W. R. White, Providence	June 6, Providence
South Carolina	W. Pyre Porcher, Charleston	April 14, Columbia
South Dakota	W. J. Mayturn, Alexandria	April —, Alexandria
Tennessee	S. S. Crockett, Nashville	April 9, Nashville
Texas	H. A. West, Galveston	April 23, Dallas
Vermont	D. C. Hawley, Burlington	October 10, Burlington
Virginia	L. B. Edwards, Richmond	
Washington	J. R. Thompson, Seattle	May —, Seattle
West Virginia	G. A. Aschinan, Wheeling	July —, Elkins
Wisconsin	C. S. Sheldon, Madison	May 3, Milwaukee